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ABSTRACT

This document summarizes proceedings of a meeting held in September 1995. The purpose of the meeting was to gather educators and policymakers in order to establish criteria concerning links between educational research and decision making. Twenty participants from the following countries attended: Argentina, Australia, Bahrain, Botswana, Brazil, Chile, China, Egypt, Germany, Indonesia, Japan, Kenya, Malaysia, the Netherlands, the Philippines, the Republic of Korea, Romania, Thailand, the United Kingdom, and the United States. The first section of the document summarizes the main issues brought out in the countries' reports: (1) the most pressing educational issues and problems; (2) linkages between educational research, educational reform, and decision making; (3) the major educational information sources available; and (4) main obstacles to better use of research for decision making. The second section offers a synthesis of the nations' experiences. Main issues are summarized and recommendations are offered in the third section. Recommendations include: establishing an international database on comparative studies; conducting comparative research; providing training for researchers and users of research; developing a regular forum of national and international researchers, practitioners, and policymakers; promoting information dissemination; and developing international networks. Appendices contain a summary of the country reports, a list of participants, and a list of acronyms and abbreviations. (LMI)

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REPORT OF THE INTERNATIONAL MEETING ON

EDUCATIONAL REFORM AND EDUCATIONAL RESEARCH:

NEW CHALLENGES IN LINKING RESEARCH, INFORMATION AND DECISION-MAKING

4-14 September 1995

NIER Tokyo, Japan

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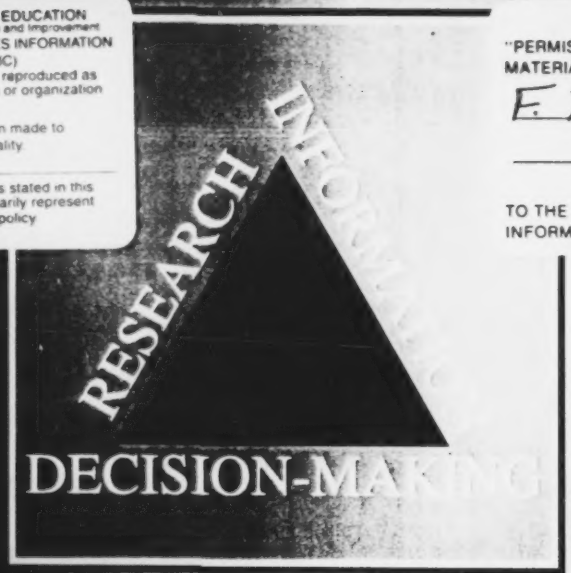

International Bureau of Education (IBE)
and
National Institute for Educational Research of Japan (NIER)

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ON EDUCATIONAL REFORM
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NEW CHALLENGES IN LINKING RESEARCH, INFORMATION AND DECISION-MAKING

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FINAL REPORT: INTRODUCTION

Background

In both developing and developed countries, educational reform continues to be an important priority. In order to provide national education authorities with a solid basis for high-quality and innovative educational reforms, an increasingly rigorous production, utilization and exchange of information is called for. Inter-regional and international co-operation and exchange of information and experiences among concerned institutions in this domain are critically important.

In pursuance of UNESCO's Programme and Budget for 1994–1995, approved by the General Conference at its twenty-seventh session, Paris, 1993, the International Bureau of Education (UNESCO-IBE) proposed that the National Institute for Educational Research of Japan (NIER) organize 'a meeting of officials from the main centres of comparative education and decision-makers in order to establish criteria concerning links between educational research and decision-making.' NIER decided to organize, jointly with the IBE, the 'International Meeting on Educational Reform and Educational Research: New Challenges in Linking Research, Information and Decision-making', from 4 to 14 September 1995, by bringing together high-level officials and researchers who play important roles in the management of educational research and its use for policy formulation and decisions.

It was significant for the discussions in the meeting that participants were drawn from all regions and from a variety of institutions. The location of the meeting at the NIER was particularly helpful for the deliberations of the participants. The NIER is an important educational research agency, generally supervised and financed by the large and powerful Ministry of Education, Culture and Science; its experiences, as well as its form and style of operation, were important sources of insight for the participants.

Objectives

The main objectives of the meeting were:

- to exchange information on critical issues and problems of education in participating countries and review the state of educational research related to the implementation and evaluation of reforms;
- to discuss and identify future research and information needs for the implementation of educational reform and decision-making;
- to suggest ways of promoting co-operation and communication between decision-makers in education, educational researchers and information/documentation specialists, in order to promote effective educational decision-making; and
- to propose suggestions to educational research institutions, decision-making bodies and documentation centres on ways and means of strengthening regional and international co-operation so as to link educational research, information and decision-making effectively.

These objectives invited the participants to focus on problems in establishing effective links between educational research, policy development and practice and the final report reflects this. Participants did not spend time developing a reassuring catalogue of examples where

educational research has influenced policy and practice. They gave their attention to deficiencies in an enterprise to which they have strong professional commitments, in the belief that it was better to direct their efforts to the clarification of problems and to the suggestion of strategies for improvement.

Participation

Twenty participants from the following countries took part in the meeting: Argentina, Australia, Bahrain, Botswana, Brazil, Chile, China, Egypt, Germany, Indonesia, Japan, Kenya, Malaysia, the Netherlands, the Philippines, the Republic of Korea, Romania, Thailand, the United Kingdom and the United States of America. These participants were invited as individuals, able to speak about the experience of their countries, but not as official representatives. The Chief of UNESCO-PROAP's Asia-Pacific Centre of Educational Innovation for Development (ACEID) and two staff members from NIER participated in the meeting as observer-participants. Mr Federico Mayor, Director-General of UNESCO, who was on an official visit to Japan, addressed the meeting on 12 September 1995.

A list of participants, observers and the secretariat members of NIER and the IBE is provided in Annex II.

Inauguration

The meeting started with an opening address by Mr Yukihiko Hishimura, Director-General of NIER, followed by a welcome address by Mr Hideki Hayashida, Director-General of the Bureau of International Affairs, Japanese Ministry of Education, Science, Sports and Culture. Mr Juan Carlos Tedesco, Director of the IBE, delivered a welcoming speech to participants on behalf of the Director-General of UNESCO.

Election of officers of the meeting

The participants unanimously elected the following persons as officers of the meeting:

Chairperson:	Dr Vichai Tunsiri (Thailand)
Vice-Chairpersons:	Dr Nadia Gamal El Din (Egypt)
	Dr Lydia Nyati-Ramahobo (Botswana)
Rapporteurs:	Dr Cesar Birzea (Romania)
	Dr Barry McGaw (Australia)

Organization of the meeting

The meeting began with the presentation of the country reports, followed by the IBE's presentation of a synthesis report, and discussions on:

- future research and information needs for implementation of educational reform and decision-making;
- ways of promoting co-operation and communication between decision-makers in education, researchers and information/documentation specialists; and
- suggestions for strengthening regional and international co-operation.

On 13 September 1995, an 'International Symposium on Recent Trends in Curriculum Reform' was held at the National Education Centre in recognition of the fiftieth anniversary of UNESCO, with the participation of four specialists from the meeting: Dr Barry McGaw

(Australia), Mr Yukihiko Hishimura (Japan), Dr Don-Hee Lee (Republic of Korea), Dr Wynne Harlen (United Kingdom) and Dr Gordon M. Ambach (United States of America).

Closing session

A draft of the final report was presented to the participants of the meeting on its final day (14 September 1995) and was adopted with modifications.

SYNTHESIS OF COUNTRY EXPERIENCES

This section summarizes the main issues brought out in the country reports prepared by participants and in the discussions during the meeting. Summaries of the country reports are provided in Annex I. The country reports and the discussions covered the following topics:

- the most pressing educational issues and problems in the country;
- linkages between educational research, educational reform and decision-making, particularly: the role of educational research in planning and implementing educational reform in such areas as curricular reform and decision-making; and identification of future research and information needs for educational reform and educational decision-making;
- major educational information sources available in the country, particularly with regard to: types of information collected and disseminated, types of users, and linkage or access to information services and networks outside the country; and
- the main obstacles preventing a greater use of educational research findings and information for educational reform and decision-making.

Although this report is based primarily upon the participants' contributions, other sources have been consulted, such as national reports on the development of education submitted to UNESCO-IBE by Member States, NIER/UNESCO-APEID (Asia-Pacific Programme of Educational Innovation for Development) meeting reports and other documentation relevant to the theme of the meeting. At various points in the report some countries are presented as illustrating particular issues or developments, yet the topics are often relevant to other countries as well.

The most pressing educational issues and problems

Participating countries reported various educational priority issues and problem areas. Some of these areas and issues are country-specific, and relate closely to the country's unique social, political and developmental contexts. Some countries are introducing more radical and comprehensive agendas for educational reform and activities than others. Notwithstanding differing priorities, all countries regard educational reform activities as an essential supporting and driving force of national development.

The major educational issues pointed out by the countries can be viewed from four different angles:

- guiding principles: the relevance, quality and efficiency of education; partnership/participation in education; flexible, comprehensive, future-oriented and development-oriented education; students' work loads;
- system-articulation and finance issues: decentralization of the education systems and management; centralized decision-making; federal systems and networks; strengthening of school autonomy; systems of lifelong learning; transition from one system of education to another; co-ordination and linkages of various systems within the education sector, and between the education sector and other sectors in society; types and levels of education;
- special areas of education: educational contents and curricular integration; methods and materials; higher education; teacher training; learning technologies; and

- learner-related issues: cultural, linguistic and socio-economic backgrounds; illiteracy; gender equity; ethnic minorities; learning in remote and rural areas; motivation, social and emotional problems; teacher shortage in rural areas.

The guiding principles for the overall system of education—such as its relevance, quality and efficiency—appear to cut across all major priority areas. Following the trilogy of development put forward by the 'Basic Guidelines of the State Policy' (equity, economic growth and national stability), Indonesia considers education as a decisive factor in achieving equalization of achievement.

The relevance of education refers to the needs of the learner, the developmental and socio-cultural needs of the nation (both present and future), as well as the local and provincial needs.

Urgent issues related to system-articulation and educational financing are the decentralization of the education system and the delegation of authority to local and provincial bodies of education. Participation, collaboration and co-operation among different sectors, organizations and personnel are considered important facilitating and safeguarding mechanisms of the process of decentralization. China is currently going through many educational reform activities and programmes, one of which is to sub-contract government-run schools to local communities or individual citizens, and alternatively, to provide non-governmental schools with governmental subsidies, where conditions permit. China plans to increase the percentage of educational expenditure from 3% of the gross national product (GNP) in 1991 to 4% by the year 2000.

Over the last five years, Romania has been going through the stages of breaking away from the communist system, of stabilizing and consolidating the education system and of decentralizing educational management and administration. Romania insists that this process should be backed by policy and other types of relevant research, the training of necessary support staff and attitudinal changes on the part of the educational authorities and personnel. Since unification in 1990, Germany has faced the challenge of attempting to establish a common and comparable basic structure within its school system. Australia is moving to develop a more national perspective through co-operation among the states and to decentralize further within the states while maintaining a common curriculum framework. Bahrain is trying to mobilize the efforts and know-how of various units of the Ministry of Education and those of other offices in order to make concerted attempts at change in the education system. Japan is struggling to establish better forms and structures of a lifelong education system in a country whose population is ageing. The United States is implementing strategies for standards and system-wide reforms to achieve new national education goals. The dual objectives of raising standards for all children while promoting specific programmes for those living in poverty, those suffering from disabilities and other special needs are the top priorities.

The reports from Argentina, Brazil and China indicate that decentralization of the education system is not a dichotomous issue—either centralized or decentralized. These three countries are attempting reforms to face the challenge of establishing a new balance, empowering both schools with increased autonomy and the centre with centralized frameworks and systems. The question is how and to what extent the education system should be decentralized. This process involves: the identification of mutually beneficial and facilitative roles of both the federal and local governments; the roles of different actors and participants in educational reform and their autonomous functions in this process; mechanisms of consultation and participation of these actors; the information systems required to co-ordinate and efficiently update information relevant to educational reform at the federal level; and the capacity to collect, analyze and synthesize local information sources.

The reform of specific areas of education, particularly the new organization of contents and methods of education, is considered by the majority of countries as a continuous process, and reform attempts in this area directly affect the learner, the teacher and the support staff. New learner-focused evaluation and examination procedures which place more importance on students' mastery of knowledge, their motivation to learn and their competence-building are gaining more and more attention. China considers it important to update science courses and the contents of school textbooks in order to take into account the latest advances in science and technology and to increase the relevance of instruction to daily life. Germany is taking measures to reinforce tolerance and solidarity through the development of positive attitudes in young people and the promotion of appropriate educational activities. Australia has, through national collaboration between the states and territories, fundamentally altered its curriculum framework by expressing it in terms of student learning outcomes in eight learning areas. The United States is investing heavily in use of learning technologies. Most of the countries have oriented curricula changes to develop essential competencies.

Asian countries, such as Thailand, are treating science and technology education as well as moral and ethical education as priority educational issues and the integration of various subject matters is receiving more attention in this region. The development of new methods and teaching materials in the Arabic language is important for Bahrain.

Teacher education is a priority for all countries. The expanding roles and new responsibilities of teachers are currently discussed in many parts of the world, along with issues associated with teacher status, teacher competence and qualitative improvement of pre-service and, particularly in those countries with an ageing teaching profession, in-service teacher education. The educational contents related to health, the environment and population are going through new experiments of integration and the development of new teaching materials and methods. Higher education, employment and further training are priority issues for Australia, China, Japan, Romania and many other countries.

Learner-related issues of education cover the illiterate and the education of special groups, such as the physically challenged, linguistic and cultural minorities, students in remote and rural areas, refugees and migrants, and women and girls. Multi-cultural education, the teaching of minority languages, and creating a gender-sensitive curriculum are proposed to cater to the needs of various learners.

The role of research in planning and implementing educational reform

The majority of countries expressed diverse opinions with regard to the areas of educational reform programmes and activities where educational research (hereafter ER) exerts influence and has an impact. All countries share the view that research in general is useful and agree with the fundamental role ER plays. That is, ER is basically a vehicle to produce systematic and analytical knowledge and information designed to aid the understanding of educational phenomena and the planning and practices of educational changes essential for educational reform.

The importance attached to the role of educational research in educational reform has been evident in the United States, for example, in the recent reorganization of the Office of Educational Research and Improvement (OERI). The United States created a new policy board, the National Educational Research Policy and Priority Board; five national education research institutions and a new National Library for Education within OERI, in addition to the existing National Center for Educational Statistics. Dissemination through the Educational Resources Information Center (ERIC) and the Internet has been expanded particularly to serve teachers and administrators.

Educational research in Japan constitutes an important resource for policy-level decision-making in educational administration. In particular, research resources are heavily drawn on in the course of debates in such organs as the Central Council for Education and the Curriculum Council. China has the National Steering Committee on Educational Research Planning, and recently a Leading Co-ordination Group on Educational Research has been established within the State Education Commission.

The German Science Council (*Wissenschaftsrat*) is instrumental in advising parliaments and governmental authorities of the *Länder* on scientific and research matters, while the German Research Foundation (*Deutsche Forschungsgemeinschaft*) awards financial support to research projects, particularly of a collaborative and multi-disciplinary nature. The *Bund-Länder* Commission for Educational Planning and Research promotes pilot projects and evaluation research projects at both the *Länder* and federal levels. The commission has also initiated a Special Information System of Education, conducted for the time being as a pilot project. The objective of this project is to collect information on the overall development of the education system. A network consisting of documentation and information units in the L%nder and special university institutes has already been developed within this project.

The Korean Educational Development Institute has been promoting ER regarding major priorities in Korean education and educational policies. The university-based research institutes, provincial/municipal centres for educational research, private research institutes and teachers of elementary and secondary schools have been actively participating in research activities to aid educational reform activities. The Republic of Korea discloses three functions of research in enhancing educational research activities and programmes: evaluation or state-of-the-art research on the current status and situations of education; the provision of a knowledge base for policy alternatives and options; and development-oriented research to implement the specific tasks and activities of educational reform.

The Philippines places considerable importance on the role of research in formulating policies and strategies for educational reform activities, and their research experiences show that a substantial number of reform activities have profited from the knowledge/information base which their research has generated. The Ministry of Education, Culture and Sports runs several bureaux and specialized centres which are actively engaged in research on policy- and practice-related educational issues. The National Educational Testing and Research Centre (NETRC) is a leading research institute which conducts research on policy-matters and other educational priorities, particularly addressing access to quality education for all Filipinos.

The Office of the National Education Commission of Thailand, which is responsible for the preparation of the National Scheme of Education and co-ordination of the National Development Plan, initiates and analyzes information from educational research activities at the national, ministerial/departmental, institutional and individual levels. Research at the national level is aimed at improving the efficiency of the education system, policy formation and planning, while research at the ministerial, institutional and individual levels is undertaken to deal with more specific objectives.

In Australia, there is a very diverse educational research enterprise with the largest component being in the universities. Two national reviews, one general and the other focused on research in vocational education and training, found clear evidence of increasing research strength but also evidence of fragmentation and inadequate connections with policy and practice.

In the Netherlands, contract research (financed by the government) plays an important role in supporting educational policy-making and practice. There are two types of research in the Netherlands—those research projects conducted by universities and those undertaken under contractual arrangements with the National Institute for Educational Research (SVO)

and the Ministry of Education, Culture and Sciences. University-based research consumes about 30% of the national educational research budget. The results of educational research for educational reform activities in this country can be classified into the following four types: *fundamental research* aimed at the understanding of educational problems; *diagnostic research* to support educational practices; *development research* to support educational policy and practice (curriculum, tests, policy measures, etc.); and *evaluation research* to investigate the effects of policy measures implemented or educational materials developed. Educational research in the Netherlands is utilized in some phases of the educational policy-making process in the analysis of problems and/or in the development of alternative solutions or options.

The activities of Indonesia's Office of Educational and Cultural Research and Development cover a wide range of research topics, including policy-planning and development, pedagogical issues and educational and cultural planning. The Centre for Informatics collects, processes and publishes educational statistics, and also analyzes them together with socio-economic data to perform studies on macro educational planning as a part of the annual ministerial planning cycle. Indonesia stresses the relevance of research to societal needs at different levels as an important factor for better utilization of the results of research. The Centre for Policy Research in Education and Culture is responsible for conducting research in education and culture, particularly those research projects designed to provide educational policy-makers with information on policy matters and options. The Centre for Research and Development on Educational Examination undertakes research and development in examination systems at the national level. Indonesia is actively engaged in applied research to identify innovations in science and technology and in development projects, including the training of the science teaching personnel. This Office is also conducting an evaluation of the applications of pedagogical research, educational curricula, contents and methods of education, and teacher training strategies. The Centre for Curriculum and Instructional Materials Development and the National Centre of Examination and Educational Evaluation are also taking part in research in the fields of curriculum and examinations.

Educational research in Malaysia is conducted by various organizations, such as the Educational Planning and Research Division of the Ministry of Education, universities, private foundations and professional associations. In this country, research plays three main functions: to guide decision-making, policy formulation and options; to monitor programmes and policy implementation; and to gather information on educational issues and problems. Access, equity, quality, efficiency and effectiveness are pointed out by Malaysia as the guiding principles for policy research.

China emphasizes three functions of educational research: to provide the policy-making process with a knowledge base; to provide the educational research process with practical information; and to establish theoretical and philosophical foundations of educational issues and processes.

Brazil reports substantial impacts exerted by educational research in the analysis of the available statistical data on the drop-out rate, the national evaluation of students' performance and the evaluation of the financing and efficiency of public higher education.

Argentina's educational policy-makers decided to use commissioned research on educational needs and demands and the findings of research on specific topics, such as mathematics, linguistics, administration in developing the 'Common Basic Contents', a federal curriculum framework.

Educational research in Kenya is conducted by various bodies. The Planning Unit of the Ministry of Education, with assistance from the Central Bureau of Statistics (CBS) for data processing, collects and analyses vital educational statistics on educational facilities and financing, student enrolments and the number of teachers. The Kenya Institute of Education

(KIE) carries out curriculum development and evaluation research at the pre-school, primary and secondary education levels. The Kenya National Examinations Council (KNEC) undertakes examination-related research in order to improve the diagnostic value of examinations at the primary and secondary levels. The Teachers Service Commission (TSC) collects data on teachers, including their pay scales. The National Council for Science and Technology (NCST) co-ordinates educational research related to science and technology. Universities, NGOs, individual researchers and international organizations also conduct research in Kenya. Collaborative research projects with other countries and international organizations and those between government agencies and universities are receiving increasing attention. Partnership in educational research is a main factor affecting the role of research in advancing reform activities in education.

Recommendations by the National Commission on Education in Botswana are influenced by various agencies including the Botswana Educational Research Association, the National Institute of Research and Documentation and individuals at universities and other institutes. These recommendations are later translated into national policies on education. Implementation of some policies is further informed by research commissioned by relevant ministerial departments.

In 1990, Romania re-established the Institute of Educational Sciences (IES) and the Institute of Psychology in order to cope with the renewed need for expertise and information. Particularly, the IES is currently undertaking the task of designing, experimenting with and evaluating the reform programmes, covering areas such as the education system, curriculum development, basic research in education, educational statistics and the dissemination of the results of research, pilot projects and international collaborative research projects.

In the United States, ER has profoundly impacted the shaping of reforms in classroom practice, learning theory, the building of system capacity, establishing standards and performing assessments, curriculum revision and teacher professionalism, technology for learning and in preparation for employment.

Many countries examine the role of ER at two levels. The *micro-level* is the degree to which ER exerts influence on in-school and out-of school activities, such as curriculum and textbook development, teaching/learning processes, values and attitudes of students, organization of school activities and learning experiences. The *macro-level* is the degree to which ER influences national policies, policy options and perspectives, and the policy system involved in planning educational activities.

With regard to present and past experiences, there is a general feeling that the impact of ER, particularly the impact of a direct nature on policy formulation and high-level decision-making (macro-level), is rather weak. More countries report that ER has a greater impact on micro-level educational activities, such as the development of curricula, teaching and learning materials, methods of evaluation and examinations, effective in-service teacher training techniques, etc. However, the experiences of Bahrain and the Philippines demonstrate exceptionally strong cases of the utilization of research results at the macro-level. Bahrain's main research utilization reviews are chaired by the Minister of Education with the participation of all senior directors in the ministry.

According to some countries, micro-level ER is often designed to produce a set of recommendations and suggestions concerning optimal choices or courses of action on high-quality and efficient ways of delivering educational inputs suited to a given target population and its cultural and socio-economic conditions.

Several countries expressed a dilemma concerning the micro-level or practice-oriented ER. On one hand, the widest possible participation of all actors and interest groups in implementing ER is desirable in view of the democratic conduct of research and an enhanced

understanding of the agenda and use of the research results. On the other hand, however, a concern has been expressed by some countries that wide participation of all parties in ER should not lead simply to an increased quantity of ER or to competition in publishing research results. Co-ordination and exchange of information is necessary among all the parties involved in ER in order to avoid duplication of research topics and the misuse of research funds already constrained in both developing and developed countries.

It was pointed out by these countries that major educational policies and changes are often brought about by social, economic and political forces and not by ER. In some cases, however, ER can appear related to policies, particularly when ER is carried out on an *ad-hoc* basis in order to support or legitimate policy-decisions already taken or intended for implementation.

There is another way to look at the role of ER in planning and implementing educational reforms. Here, the assessment of the impact of ER is focused on the research utilization process. In other words, instead of inquiring at what levels (for example, policies, national education plans, etc.) ER influences the educational reform process, this analysis sharply focuses on the utilization processes of ER vis-à-vis educational reform.

Except in a few cases where a commissioned ER project has brought out a specific solution to a given problem and the commissioner of a research project identified a research agenda and the ways the research results were to be utilized, very few countries witnessed a linear model of research utilization in which an immediate solution to a specific problem was sufficiently brought out by ER.

Some countries refer to the so-called 'enlightenment model' of ER utilization, where (although ER does not bear a direct relationship to the decision-making or policy process) it provides a progressive and gradual stimulus, and in doing so it widens the horizons of policy-makers' perspectives with scientific and analytical information. ER, in this sense, enlightens and stimulates the thinking of politicians and decision-makers, teachers, school administrators and other educational practitioners. Along with ER's role of providing enlightenment, some reports refer to researchers, researcher-advisers or brokers whose role is often, besides giving advice for solving specific problems, to serve as experts for advisory committees of the ministries of education, advisers to large-scale national projects, research supervisors in higher education, indicating that human resources contribute to the enlightening function of ER.

Because some countries have little confidence in the linear-model of ER utilization and oppose strict compartmentalization of the three major actors in this area (researchers, policy-makers and educational practitioners), they have discovered a new kind of ER utilization strategy. This new model is a dynamic one and relies heavily on the interactions of the main actors of ER in the agenda-setting, implementation strategies and use of ER results. This model requires not only interactive communication or negotiation techniques by the users and producers of ER, but also inspires active processes among the user and producers themselves. For example, the knowledge/information needs at the local, provincial and national levels must be taken into consideration when drawing up a research agenda. The producers of ER in universities, ministries, autonomous research centres and teacher-researchers must communicate with each other to maximize the contribution of each other's experiences and research results in promoting the utilization of ER.

Since the country reports were focused on obstacles, they did not seek to document success stories about the direct and visible impact of ER in terms of generating policy options and decisions. Several countries, however, pointed out the usefulness and the important role played by so-called evaluation research. Evaluation research aims to assess the existing state of affairs and the impact and the degrees of success of implemented policies and planned reform programmes and activities. Due to present trends of decentralizing the management of

education systems, the central authorities of education are particularly interested in assessing the effects of centrally initiated, research-driven educational reform activities at the local and provincial levels. This fact is often witnessed by the need for a centralized information system which can collect and analyze various types of educational information created in different regions and at local points within a given country. In this case, the collection and analysis of information is not possible at the central level; the linkage of the central system of information with those of the local levels is proposed as an alternative solution.

Decision-makers often see state-of-the-art research as a useful instrument to analyze trends and general developments in the problem areas under review before the formulation of reforms and activities. The state-of-the-art review on the results of ER provides educational researchers with information in a given area, often signals what areas have been extensively explored and reveals which research areas remain relatively unexplored.

The rigour and power of the role of ER vis-à-vis educational reform is also determined by many other factors, some of which are inherent in ER and others which are external to it. The magnitude of funding for research and development (R&D), strong or weak ER policies, the infrastructure of ER, and the human resources reserved for ER are examples of external factors. Those factors internal to ER are the quality of research (both input and output), and the relevance of the results of ER in terms of time and space (different time points in the development of a nation, short-term or long-term results, and different levels such as local or provincial).

Future research and information needs

RESEARCH NEEDS

The participating countries expressed their future needs of ER mainly in terms of:

- research priorities;
- new orientations and methodologies for research;
- more effective linkages between the producers and users of ER;
- support systems and personnel; and
- international and regional co-operation.

Priorities for research

Countries indicated the following areas in which research should be continued:

- educational contents and establishing standards, curriculum, teaching methods, evaluation methods, assessment to enhance learning, examinations, learning processes, theories of teaching and learning practice;
- systems, structures and management of education, access to basic and compulsory education, decentralization, school management, linking the formal and informal types of education, transition from vocational education to work (linking higher education, employment and training, etc.), use of learning technologies in and outside of schools;
- policies and educational goals (education for the twenty-first century, democratization of education, cultural and international objectives of education);
- teacher education and staff development (expanding roles of teachers, teacher shortage, teacher status, professional competence of teachers, etc.);

- social aspects of education (equality of educational opportunity, disadvantaged groups, the physically challenged, social integration, minority groups, multi-cultural education, gender issues, refugees, environmental education, etc.); and
- international issues (regional co-operation, internationalization of education, study abroad, regional and international recognition of diplomas, etc.).

As far as the contents and methods of education are concerned, the countries are pre-occupied by quality, relevance, efficiency and cost-effective operations, moral education, modifying existing models and developing new curricula. ER, both as a means of supporting the development of innovative approaches and projects and of assessing their implementation and impact, is attracting increased attention in many countries.

New orientations and methodologies for research

No country suggests weakening the scientific rigour of ER and its analytical power in order to align ER with the more practical and urgent needs of decision-making. However, a series of important questions were raised. How can researchers, while applying and even improving scientific methodologies of ER, expand the horizons of ER in terms of politically, socially and pedagogically pertinent agenda setting, and also encourage greater use of research results by politicians, decision-makers and educational practitioners? How can researchers enlarge their view of policy-making and socio-political constraints involved in various decision-making realities, particularly to match their work with large-scale system-wide and 'systematic' reforms? How can researchers meet the urgent time frame of decision-makers who must choose options quickly? How can researchers help decision-makers who are relatively unfamiliar with ER to develop greater understanding of ER and its scientific value, so that ER information can be utilized as a basis for their decision-making, in addition to the present system based on their personal experiences, instincts, and the influence of public opinion and the media?

According to all countries, the combination of both quantitative and qualitative methods of ER is useful. This calls for an alliance of several social and human science disciplines and a multi-disciplinary approach to educational problems. Historical research, action research, longitudinal and state-of-the-art research, socio-cultural analysis of education, anthropological approaches, as well statistical and other quantitative methods, can be skilfully combined. This approach can contribute to widening the role of ER and its increased relevance to education. This approach also calls for the co-operation of researchers from other fields.

Argentina suggests not only policy-oriented or applied research aimed at decision-making, but also the need for basic research which sometimes may have more predictive potential.

Australia calls for basic research on learning and teaching processes to be maintained but also for applied work on curriculum, management in devolved systems, the economic benefits of education and training, and the role of practitioners as researchers.

Bahrain has adopted a new research approach with a focus on educational processes. New conceptions of validity, new techniques and different kinds of data are used to explore current processes and to investigate the impact of policies in operation.

The Netherlands suggests various principles, such as independence of research institutes, competition, coherent programming and client-oriented research, as means to improve the quality of research in order to guarantee that the intended results are achieved.

Egypt is using the results of comparative educational studies to identify common and different approaches to curriculum development, examination systems and the teaching of foreign languages.

China calls for a more dynamic orientation of educational research and the need to introduce the concept of competition into various aspects of the research process.

The Republic of Korea considers longitudinal research as an important tool for obtaining precise and long-term information on various aspects and learners.

More effective linkages between the producers and users of ER

Many countries recognize that not only the quality of ER is important, but also that ER must be reliable and credible in order for its results to be used and applied fully to decision-making. In this respect, effective collaborative links between educational researchers and practitioners is essential.

Indonesia stresses that educational research should be built into a long-term master plan of education and such research must be geared towards the major educational priorities of the nation.

All the countries foresee the increase of international collaborative research as a means to analyze educational issues from an objective and comparative perspective, and consider such research as a significant contribution to the planning of educational policies.

The needs expressed by participating countries to reinforce the links between the three types of actors—researchers, policy-makers and educational practitioners—can be illustrated through a brief examination of the cultural characteristics of these groups.

The culture of researchers is basically discipline-oriented and does not (necessarily) require frequent decision-making or priority setting for choosing desirable options and for system-wide decisions. The knowledge and information produced by researchers is not fixed or definite and is open to change and verification. As one of the main cultural tasks of this group is to systematize knowledge and information, its engagement is often theoretical and conceptual. More importantly, the main dialogue or communication partners in this group are fellow researchers.

The culture of policy-makers is, on the other hand, very much action-driven. Actions and decisions are important ingredients of the culture of this group. As the actors in this culture are often elected or appointed, not only for technical competence but also for reasons of politics and power dynamics within the circles or parties to which they belong, their decision-making is often restrained by the political, social and financial circumstances surrounding educational issues. In many cases, policy-makers and high-level decision-makers do not have research backgrounds and experience. Thus, they rely heavily on their personal experiences, common sense and the opinions of pressure groups and the media. Their active time frame is another problem—they must be persuaded to be patient for longer-term research and educational outcomes.

The culture of educational practitioners (teachers, school administrators, inspectors, counselling and guidance officers, curriculum developers, etc.) is very much field-dependent. They do not usually believe in generalized theories or practices. They tend to think educational reform principles and practices must be verified for their relevance each time they are applied in different settings. Their educational decision-making is often restricted to such aspects as cost-effectiveness, institutional factors and the realistic work-load of educational practitioners, and they are particularly concerned with the willingness and motivation of the teaching personnel involved in educational reform activities.

When it comes to understanding the different practices of these three cultural groups, countries suggest that the members of these three groups must first understand each others' principal roles, salient tasks, attitudes and aspirations expressed in ER. Such cultural understanding can grow by reading about other groups, or simply by becoming informed about

the other groups via indirect encounters or communication and dialogue. However, face-to-face contact and active exchange of information in the personal form of communication enhances such understanding efficiently and profoundly. ER results will be better used if the ER agenda is shaped more by the policy-makers.

Some countries insist that one of the most effective ways of promoting this three-party co-operation is to work together towards a common goal. According to the themes of the Tokyo meeting, a common goal provides the maximum utilization of knowledge and information produced by ER for policy decisions and educational practices. Thus, the actual practice of ER would involve the co-operative establishment of a research agenda, research based on an analysis of needs, collaborative implementation of research and the joint planning for the dissemination and utilization of the results of ER. Botswana and Kenya offer examples of this kind of collaboration.

Finally, linkage issues can maximize education and training at all levels. Policy and educational practice issues can be closely and systematically linked with scientific inquiry and critical assessment of information and knowledge as a basis of informed decision-making. Researchers can be trained in how to be more sensitive to political and social aspects of ER, and on how to conduct and disseminate policy research and its results. Decision-makers can receive training in the utilization of information and knowledge, and how to combine them effectively with their political common-sense, their experiences, and public opinion and pressure so that the options chosen and decisions taken can be legitimated (politically, socially and intellectually). Educational practitioners can be trained to link educational practices with educational theories through the provision of practical problem-solving training programmes which offer case studies on how the theory-practice linkage can be improved in the actual settings of educational practices. As a means to strengthen links between research and practice, there is an increasing number of teacher/researchers (for example, in Australia, Japan Malaysia, Romania and the United States) and, consequently, the recognition of a growing need both to examine the role of teacher training, and to introduce teacher trainers and trainees to the use and application of research to teaching practices.

Research findings can also be brought to the attention of a larger audience through appropriate packaging and publication. In Scotland, for instance, the various institutions involved in educational research prepare short versions of research reports, summaries of surveys, or articles and news specifically aimed at teachers. These materials are written in a non-academic style and widely distributed, often to all schools and other educational institutions, free of charge. In many countries (such as Argentina and Bahrain), research findings are forwarded to newspapers which publish the findings of interest to their readership. The involvement of the press in the dissemination of research results permits the general public, including teachers and parents, to be aware of possible solutions to educational issues and so to influence decisions through social pressure.

In Bahrain, a seminar involving the educational staff of five schools is held fortnightly to discuss the main lines of current research.

At the regional level, the Educational Research Network in Eastern and Southern Africa (ERNESA) is working on a strategy to enhance the utilization of research findings for decision-making through a project called Educational Research Information for Practitioners (ERIP). The project aims at disseminating educational research materials which are practical, relevant and topical to educational practitioners by summarizing research findings in everyday language and sending them to teachers, school administrators and policy-makers. Furthermore, ERNESA has initiated the Africa Policy Dialogue Project, which emphasizes interaction between researchers and users of research information in terms of determining research priorities and research methods to investigate issues.

The Information and Documentation Unit within the German Institute for International Educational Research is directing some of its activities to the analysis of processes related to educational decision-making in Germany and in the European Union,.

Support systems and personnel

The participating countries, particularly the developing countries, expressed their concern to reinforce the infrastructure of ER, increase manpower for ER and develop supportive policies for ER. As some countries pointed out, whether or not such support does actually increase depends largely on whether researchers can convince policy-makers of the relevance and value of research by presenting systematically successful cases of ER utilization. Brazil, in this respect, indicates the importance of the consultancy capacity of researchers as an important factor to determine the research utilization process. Such research and manpower requirements must be met within the bounds of the limited resources generally allocated to ER—this presents a difficulty as well as a challenge.

This challenge, however, has been met by the Latin American Information and Documentation Network for Education (REDUC), a co-operative system for gathering, processing and publishing educational studies carried out by both researchers and grass-roots workers. Because of the decentralized nature of its operations, REDUC seeks to train policy analysts capable of promoting policies and programmes to be implemented in complex situations characterized by a scarcity of resources, social and political pressures, and distinct and even contradictory visions. The objectives of the REDUC courses are to train professionals who, through the use of the REDUC information base, can translate data, research results and policy options analyses into policy recommendations which are valid for particular national contexts.

International and regional co-operation

Many countries pointed out the value of sharing, at regional and international levels, information about the role of ER in planning and implementing educational reform activities, particularly concerning main educational innovations and the successful linking of ER, decision-making and educational practice.

Networking of ER institutions for mutual exchange of information, publications and research personnel was proposed as a specific activity to promote international and regional co-operation in ER. For example, Botswana notes that ERNESA co-ordinates not only research activities in the region, but also reinforces links between researchers and information centres in order to provide policy-makers with better access to educational information. Within the project Educational Research Information for Practitioners, ERNESA plans to build databases of abstracts at the national and regional levels and to serve as an information broker between decision-makers and the sources of information needed for decision-making. ERNESA is not only concerned with dissemination strategy but also with a special training programme which would enable researchers to analyze findings, select major issues relevant and timely for policy-making and present them in an accessible language.

International comparative studies and joint projects on various aspects of ER utilization and on the dissemination of ER findings must be expanded. Such projects require the active participation of all countries and all regions.

Some countries maintain that meetings with ER administrators and specialists provide a meaningful forum for the exchange of ideas, and the network established through these

meetings should be used as an on-going mechanism for exchange of information and co-operation.

INFORMATION NEEDS

The participating countries experienced the following problems concerning the availability and use of educational information.

- Information on certain educational issues is either non-existent or is available in inadequate quantities.
- Information on educational issues exists in bits and pieces but is not systematically collected and analyzed in one place.
- Information may be available but its relevance and usefulness are limited.

In the absence of ER data and information, policy-makers continue to rely on their personal experiences, their common-sense, the opinions of colleagues and the media. More importantly, even when abundant information is available to policy-makers, they cannot use it as a basis for decision-making because they cannot understand or assimilate the information due to its inappropriate presentation (such as technical difficulty in understanding the jargon of research findings; contradictory results of research outcomes; random presentation, lack of a synthesis or unclear points of ER interventions, etc.). This under-utilization of information is sometimes caused by the lack of mechanisms or intermediary agents (information brokers) which mediate between policy-makers and the producers of information. To strengthen links between the production and the use of knowledge, REDUC offers specialized training for information brokers whose major task is to bridge the gap between new possibilities (research) and actions (policy). Brokers operate as intermediaries between knowledge and concrete problems. The task of brokers is not only the 'packaging' of knowledge so as to respond to problems, but also to bring results from policy implementation to the researchers so that they may be evaluated. In this way, subsequent research will be increasingly policy-oriented.

The producers and providers of information often do not meet the information needs of policy-makers and do not make sufficient efforts to interact with them. It is generally only when policy-makers make specific information requests that producers or providers of information react. In addition, the barrier created by the use of technical jargon cannot be overlooked. Decision-makers rarely have the necessary background to understand information presented in highly technical language, nor do they have the time to decipher it.

Taking all these factors into consideration, the participating countries underlined the importance of analyzing the information, providing appropriate mechanisms for its dissemination, and creating networks of educational information centres and libraries.

The following are specific statements made by the countries concerning their information needs:

- The existence of documentation/information centres should be made known to all those who could benefit from their services.
- Systems should be established which ensure effective management of documentation and information (such as clear guidelines concerning the collection, analysis and dissemination of information and the recruitment of qualified personnel).
- Systems, channels and formats for information dissemination should be developed.
- Information networks should be created or, where they already exist, links established between them.

- Training programmes for information specialists and documentalists should be reoriented to provide more skills in the comprehensive analysis of information and in techniques of reporting and dissemination.
- Ensure that teachers and administrators have access to ER results.

Major educational information sources available within the country

TYPES AND CONTENTS OF INFORMATION COLLECTED AND DISSEMINATED

The majority of countries use both formal and informal systems and networks to collect educational information. They report that the print media are still a popular means to disseminate the results of ER and ER-related information.

The types of information most frequently collected, according to the country reports, are as follows:

- bibliographic materials (reference lists/annotated bibliographies);
- research abstracts, research documents;
- journals, monographs;
- state-of-the-art documents (including the state of educational research);
- briefings;
- statistical yearbooks on population, educational expenditure, pupil enrolment, etc.;
- policy documents (national, the United Nations, etc.);
- regular surveys of pupils' performance;
- simulation models and policy-analysis documents;
- comparative profiles of education systems;
- television and radio programmes;
- audio-visual teaching/learning materials;
- newsletters;
- research information for teachers;
- newspapers (including educational supplements);
- national reports on the development of education (submitted to UNESCO-IBE);
- encyclopedias of education; and
- national databases of publications on education.

In regard to content, information is needed in the following areas.

Education systems and management

A new balance between decentralized and centralized frameworks and systems is one of the highest priorities in this area. In most countries, the delegation of authority to local and provincial bodies is improving, but in others central authorities are controlling some discussions. In both kinds of situation, co-ordination and consultation mechanisms play an important role. Some countries advocate greater school autonomy.

Access to education

Following the achievement of the universalization of primary education, many countries have also achieved this goal at the secondary level. Nevertheless, access to education for girls and women, the physically challenged, cultural and linguistic minorities, remote and rural

populations are main areas of information explored by many countries and this information is analyzed within the purview of basic education for all and literacy education.

Educational contents, methods and examination/evaluation

The information concerning the new organization of and interdisciplinary approaches to curriculum includes the introduction of new subject areas (health, environment, population, values, etc.), innovative methods of teaching, learner-focused approaches to teaching, the use of educational technology, systems approaches to instruction, the teaching of the mother-tongue and less widely spoken languages, teacher-learner interactions, lifelong learning and courses for comprehensive education.

Teachers

Principal research areas include teacher education programmes, certification, career development, teaching competence, status, new roles and responsibilities, and teacher stress.

Socio-cultural aspects of education

The social aspects of education which countries are most concerned with include violence in schools, youth problems, multi-culturalism, socio-cultural effects of media, preventive health and citizenship.

Higher education

Areas of research at this level include new institutional roles and responsibilities, the relationship to the labour market, diminishing enrolments, State support, study abroad and student mobility, transfer of credits and recognition of diplomas and certificates.

TYPES OF USERS

The country reports indicate that the information needs of users are growing more complex. The advancement of the educational sciences has led to increasingly diversified needs of users. Users fall within the following categories:

- policy-makers/decision-makers at the national and provincial levels;
- administrators of educational institutions;
- university professors;
- graduate students of education and social sciences;
- teachers;
- school principals;
- teacher educators;
- researchers;
- librarians;
- parents;
- journalists;
- specialists (psychologists, guidance and counselling personnel, etc.);
- employers;
- teacher unions; and

- international agencies and organizations.

In general, there is a tendency for countries to disseminate the results of ER via different channels (the mass media, academic and professional journals, etc.) and also through the use of diversified formats (full research reports, briefs, executive summaries, research information for teachers, etc.).

LINKAGE OR ACCESS TO INFORMATION SERVICES OUTSIDE THE COUNTRY

Countries maintain both formal and informal contacts and co-operation arrangements with networks, information centres and educational research institutions abroad. Many countries are members of regional networks of educational research and information, such as:

- The Regional Educational Information Network (REIN) operated by the Regional Centre for Educational Innovation and Technology of the Southeast Asian Ministers of Education Organization (SEAMEO-INNOTECH);
- The Latin American Information and Documentation Network for Education (REDUC);
- The European Documentation and Information System for Education (EUDISED) of the Council of Europe;
- The Education Information Network in the European Union and the EFTA/EEA countries (EURYDICE); and
- The Research Review and Advisory Group (RRAG) which operates through four channels: NORRAG (Northern countries), ERNESA (African countries), SEARRAG (Southeast Asia) and LARRAG (Latin America).

UNESCO operates the following regional and international networks to promote the exchange of educational information, innovative experiments and experiences throughout the world:

- The Network of Educational Innovation for Development in Africa (NEIDA, Dakar);
- The Educational Innovation Programme for Development in the Arab States (EIPDAS, Amman);
- The Asia-Pacific Programme of Educational Innovation for Development (APEID, Bangkok);
- The Asia-Pacific Centre of Educational Innovation for Development (ACEID, Bangkok);
- The International Network for Educational Information (INED, IBE, Geneva);
- Caribbean Network of Educational Innovation for Development (CARNEID, Bridgetown);
- Co-operation for Renewal and Development of Education in Europe (CORDEE, UNESCO, Paris);
- The Major Project of Education in Latin America and the Caribbean (Santiago);

There is also ERIC (Educational Resources Information Center) in the United States and Internet.

Most of the participating countries are members of one or more of these networks. Many countries also have direct links with national ER institutions (such as NCERT, NIER and ACER). The Korean Educational Development Institute is a member of DIALOG, an information network operating via satellite for the exchange of innovative research outcomes. The Botswana Educational Research Association (BERA) has close links with sister networks in Lesotho and Swaziland. Germany's FORIS databank, produced by the Social Sciences Information Centre, selects research projects in the field of education of international interest

for inclusion in the Council of Europe's EUDISED databank. Germany is also co-operating with Austria in the establishment of an educational databank (available on CD-ROM) in which fourteen documentation centres from both countries participate.

Informal contacts, meetings, exchange of researchers and information specialists, and the media are further means of obtaining information from abroad.

Main obstacles preventing greater use of educational research and information or educational reform and decision-making

Political, cultural and social factors

As education operates as a sub-system of the whole social system, the use of educational research also depends on wider political, cultural and social factors.

Romania reports that, under the highly centralized former regime, scientific activities (including educational research) were discouraged. Some Southeast Asian countries report that the critical inquiry approach applied in scientific research sometimes creates confrontations and conflicts with the traditional values of this region in which social harmony and non-confrontational approaches to problems-solving are advocated. Other countries mention that, although some reforms are influenced by educational research, most reform activities are motivated by political and economic considerations (accountability, reduction of national spending, reduction of educational spending, etc.).

Chile stresses that the success of educational reform may be limited without integrated social policies which consider the needs of the learner (for example, in the areas of health, nutrition and family welfare).

Botswana and Chile suggest close co-operation between research experts and consultants of international funding and executing agencies and local researchers to ensure the validity of research to the specific context.

Egypt points to the fact that the change and restructuring of the government affects research priorities and its agenda. It also indicates the many agents and interest groups which influence the establishment of educational priorities, including both the private and public sectors. Obviously, this fact limits the impact of educational research on educational reform activities, as educational research is not the sole influence on educational reform.

In some countries, austerity policies to reduce public spending and the government's deficit negatively affect funds allocated to educational research, and these policies produce a dilemma—how can the research sector cope simultaneously with an increased need for the production of scientific information and the political pressure to reduce government spending on research. Over time, the funds available to support educational research have diminished. This situation makes it imperative that there is co-ordination between the members of the research community to reduce areas of overlap and duplication, therefore ensuring that the available funds are put to the best use.

Maintaining the status quo and conservatism of the users of research-based information

Some countries (such as Bahrain and Kenya) refer to practitioners' resistance to changes brought about through the implementation of research findings. The tendency is to hold on to old practices and habits, particularly when such findings propose the introduction of radical changes.

ATTITUDINAL, COMMUNICATION AND AUTHORITY GAPS BETWEEN EDUCATIONAL RESEARCHERS, DECISION-MAKERS AND EDUCATIONAL PRACTITIONERS

Researchers and decision-makers form communities which differ in varying degrees concerning their approach to desirable changes and the need for innovations for educational reforms. Often those who authorize and support research are disconnected from those who actually make decisions to apply research in school practice.

Due to the need to make quick decisions on multi-faceted educational issues, and also owing to the lack of trust in the results of research, decision-makers tend to base their decisions on personal experiences and common-sense, rather than on scientific data or information produced by research. Japan points to the relative lack of consensus between policy-makers and teachers on how to tackle educational problems.

Researchers, on the other hand, are driven by a theory-oriented discipline which emphasizes a rigorous and objective scientific approach and methodology to advance educational theories and ideas. They often lack interest, sensitivity and experience in understanding the agendas, issues and needs of policy-makers and decision-makers. Sometimes they are reluctant to orient or address socio-political issues and problems, and thus fail to identify the research and information needs of decision-makers.

Decision-makers often lack time to participate in research meetings and understand the value of research. They work under time pressures and are often compelled to make urgent decisions. When developing solutions, they tend to focus on the present rather than on long-term strategies.

Because there is constant pressure within the academic world to publish books and articles in scientific journals, research is often directed towards academic objectives that are not always linked to social or political changes.

Teachers, school administrators and other school-based educational personnel often find the results of ER too theoretical, inconclusive and, in some cases, irrelevant to teaching and learning. However, in those countries where teachers are actively engaged in ER, such research is more successfully applied to the practices of teaching. As pointed out by Botswana, the communication of the purposes and results of research to teachers is essential for obtaining teachers' support for data collection in classrooms, and for obtaining practical suggestions from teachers on how to improve research. This appears to be at least one solution to promote and reinforce stronger links between ER and teaching practice.

The absence of strong support by policy-makers for the entire process of the execution of research projects may reduce researchers interest and the level of their motivation in undertaking commissioned policy research projects.

LACK OF CO-ORDINATION IN THE ACTIVITIES OF RESEARCH INSTITUTIONS

This refers to the lack of co-ordination of activities by ER institutions, such as the development of research agenda priorities, the funding of research, theory-building, dissemination and use of research findings, networking, and establishing research- and information-sharing systems.

LACK OF ADEQUATE TRAINING FOR THE ACTORS OF EDUCATIONAL REFORM AT ALL LEVELS

In order to carry out educational reform programmes effectively and create policies that will have a significant impact, teachers, school administrators, curriculum developers, education

officers and others at local and central levels must be trained adequately to understand and apply research-based findings or information to solve educational problems.

WEAK IDENTIFICATION OF COUNTRY/LOCAL-SPECIFIC NEEDS

Educational aid and developmental programmes can have a stronger impact on educational reform if policies are created that reflect the particular needs and context in which reform tasks are tackled and if those who make the policies are involved in the decisions to undertake the ER.

DISSEMINATION SYSTEMS AND MANAGEMENT OF RESEARCH-BASED INFORMATION

Weak infrastructure of the information system

Shortages of skilled and qualified personnel to manage and operate information systems affect the capacity to collect, synthesize, analyze and integrate available research-based information. There is also often a lack of necessary technological, material and financial support to aid these processes.

Lack of solid information networks for information management and co-ordination

Networks can aid both the collection and dissemination of research findings. There are formal and informal networks, both of which are used by the majority of participating countries. One of the major problems is how to maintain and manage a nation-wide information network or system when countries are opting more and more for the decentralization of their research activities and their institutional arrangements. Moreover, who assumes the co-ordinating role and functions, and how?

Forms and language of communicating research findings

The technical and professional journals read by researchers are not addressed to decision-makers and educational practitioners, due to the different terminology used in research publications, highly abstract conceptualizations of educational issues, followed by lengthy theoretical discussions, and the sometimes indecisive and even contradictory conclusions and arguments produced by research.

Language barriers exist not only between researchers and users of research but also between countries when attempting to exchange research information. The translation of research information from foreign languages into a national language is an expensive enterprise. Also, the dissemination of research reports written in less frequently used languages (non-official languages of the UN) is extremely difficult. Scotland suggests seminars as a means to inform high-level decision-makers of both completed and prior-to-publication research findings.

Lack of diversified channels of dissemination

Printed material is still the primary method of disseminating research-based information while audio-visual or multi-media based presentation of information (CD-ROM, television), which potentially could have a strong impact on the use of research, is not fully used for technical and financial reasons.

Lack of access to information

Some research-based findings do not reach users simply because there is no deliberate or systematic attempt or capable agent to do so. Information must be processed in order to be accessible to the consumers of research. At times, good theses are kept unpublished or their circulation is extremely restricted because their findings are not considered as serious as the work of well-established academics. In other cases, research conducted at the university level is theoretical, rather than practical and applied.

Time factors

Decision-makers are busy people and have relatively little time to read research findings. Other educational practitioners such as teachers, school administrators and community leaders are sometimes reluctant to spend the time necessary to review educational research literature and its results, due to an overload of work as well as often conservative attitudes and a desire to maintain the status-quo.

Because of the lengthy process of compiling and analyzing research findings for potential users of ER, research results are often not available within the time limit which the users have specified.

Lack of training for dissemination

Training programmes for researchers are still extremely theoretical, stressing the technical and statistical analysis of educational issues. Relatively little time is spent on the techniques of applying and disseminating research results. The training does not sensitize researchers to user needs, especially those of decision- or policy-makers.

Also, the training programmes of documentalists do not develop their ability to analyze, synthesize and disseminate research findings. Documentalists need to be trained to identify the information needs of both researchers and decision-makers.

Quality of information disseminated

The credibility of information, its relevance and quality affect its use. But problems related to the quantity of information should not be overlooked. Also, information overload can be a serious obstacle, particularly when large quantities of information are not organized or structured hierarchically, or when the information is not presented in a clear way. Similarly, the Republic of Korea considers the lack of empirical data as an obstacle which reduces the impact of research on educational reform.

The impact of research may also be limited by the fact that research findings are not easily reproduced from one setting to another. Can research results obtained from studying a specific institutional setting be used to solve problems in other settings?

Scotland notes the difficulties of research with a small sample and appeals to research to satisfy the short-term needs of policy-makers, yet still encourages longer-term research.

MAIN ISSUES AND RECOMMENDATIONS

New challenges for educational reforms

There was general agreement amongst participants that the education systems in various countries and regions need to evolve in ways that effectively accommodate the rapid changes currently taking place in all societies and regions. Education systems should also meet demands for greater relevance and effectiveness as they seek to accommodate the emerging social, economic, political and cultural issues and concerns.

Educational research has the potential to make an important contribution to the rational understanding and management of these major issues and concerns. Educational research can play a key role in the decision-making process for policy-makers and for practitioners functioning at various levels within an education system.

In this respect, participants identified the following key new challenges for educational reform.

Globalization

With the emergence of the global village, there is strong interaction, exchange and interdependence between cultures, countries and individuals. Therefore, within this global context, research needs to be conceived and operationalized in an interactive way, moving from a largely national to an increasingly global context.

Democratic principles

With the emerging new democracies, an increasing number of countries are adopting democratic principles of political organization. This involves a wide range of actors in the decision-making process, including various experts and diverse members of civil society. The challenges occasioned by this new political context go far beyond the establishment of formal democratic mechanisms to include the transformation of the daily life of the citizenry itself. This results in a greater emphasis on shared responsibility in decision-making. This movement involves an increasing emphasis on critical thinking, freedom of expression, the free flow of information and on a philosophy of human rights, with particular reference to the rights of the individual.

Problems related to the modernization process

This involves concerns such as drugs, increasing violence, criminality, unemployment, health problems, pollution, demographic problems, illiteracy and a loss of traditional values. In addressing these urgent problems, decision-makers require immediate and useable research findings. As a result, there is a new range of challenges for researchers which have not had to be addressed in the past, and also an urgency regarding the immediate availability of research data to help solve these problems. These changing demands have required a shift in research mentalities and priorities, complicated by the fact that researchers are no longer dispassionate observers of the areas about which they conduct research, but are themselves actors in the actual situations being researched.

Competitiveness

With the emergence of a global economy the countries concerned need to take action to reform their education systems in ways which give them a competitive edge to function effectively in this changed and highly demanding economic environment. This requires improved access to experts' knowledge. Although members of a global village, countries also seek to maintain their individuality within this changed context. Consequently, there is a need to be increasingly competitive. There is a move to place greater stress on improved quality (through the adaptation and adoption of innovative changes), rather than just stressing the quantitative expansion of education systems, which was the prior emphasis.

Equity

An increasing number of countries are stressing improved access and equity as they reform their education systems. In pursuing this objective, reliable information is required both to diagnose the extent of the problem and to monitor progress made in the quest to achieve greater access and equity. This move represents the cultural outcome of the overall trend towards political democratization in many countries. Although this concern with equity is an international trend, the challenge is nevertheless expressed in national terms with regard to policy-making.

New citizenship

The types of changes occurring in countries have resulted in the redefinition and expansion of the rights and responsibilities of individual citizens. This requires a need to accommodate such matters as a changed attitude regarding the role of individuals within the group, new values, a desire for individual participation, membership within various communities, the accommodation of new innovations and an ability to adapt and anticipate change. As part of this move to a re-definition of citizenship, researchers themselves need to be aware of their new roles, rights and responsibilities as both producers and consumers of useful knowledge.

Educational reform and educational research: old partners and new expectations

The educational environment has become so complex that there is a need for reliable research-based data to enable effective decision-making to occur. As a result, previous approaches to decision-making, often based upon folklore and intuition, will no longer do.

In order to address the types of challenges identified above, there is a need to develop a more effective bridge (and greater closeness of association) between the producers and consumers of educational research. With regard to this matter, participants identified the following concerns as being particularly important.

The role of educational research in planning and implementing educational changes

Three matters warrant special mention. First, because of the complexity of variables, there is a need to adopt a holistic approach which brings together, in a harmonious way, the various interest groups with a concern about the generation of useable research data.

Second, there has been a major paradigm shift in terms of systemic reform, with attempts now being made to adopt an overall perspective rather than just considering various

small matters in isolation. This requires the full, co-ordinated participation of the various actors involved in the decision-making process.

Third, researchers are particularly involved with policy-formulation and programme implementation. Participants pointed out that researchers should be involved in an active way at all levels of the education system. Two particular examples were identified by participants: the provision of new contents for curriculum materials and textbooks; and the in-service training of teachers in order to sensitize them to educational research being directed at particular reforms.

STRENGTHENING LINKAGES BETWEEN DECISION-MAKING AND EDUCATIONAL RESEARCH

Educational reform is generally driven by political, social and economic concerns, whereas educational research tends to be motivated by the quest to gain new knowledge and understanding regarding educational phenomena. Thus, there is a basic schism between the culture of the decision-maker (which is action-oriented) and that of researcher (which is knowledge-oriented). Participants identified three major ways in which these two different cultures can be brought closer together.

First, the language of research should be changed in order to try to make it more understandable for policy-makers, thus making it more relevant, timely and precise. For example, an important concern is how best to transform knowledge into an effective planning matrix. A lengthy debate occurred regarding this matter, including a discussion of the fact that researchers produce knowledge whereas decision-makers need information—an adaptation of the knowledge produced by the researchers.

Second, decision-makers and researchers undertake different forms of professional training which affect their outlook and how they interpret their roles. There is a need for training that helps develop new skills enabling researchers and policy-makers to better understand and work with one other. For example, future researchers must be trained with regard to how to produce research reports for decision-makers, how to interact most effectively with the mass-media, how to market their ideas most effectively, public relations, communication techniques, sensitivity to social problems and so on.

Third, there is a need to develop an organizational culture to help achieve an improved mutual understanding and openness with regard to innovative ideas and expert advice.

Fourth, the determination of research priorities and funds should be carried out jointly by the decision-makers responsible for funding research, researchers/research bodies and other partners of research who participate in the planning, implementation and use of research findings.

MODALITIES OF ACTION TO BE USED IN ORDER TO RENDER EDUCATIONAL RESEARCH MORE RESPONSIVE TO THE NEEDS OF VARIOUS ACTORS CONCERNED WITH EDUCATIONAL REFORM

Educational reform is not the exclusive responsibility of any one interest group, but involves many different actors such as: policy-makers, teachers, teacher-trainers, parents, community members, administrators, politicians, trade unions, employers and the media. Therefore, the output of educational research needs to be presented in a form that enables easy consumption by these various interest groups, with both non-academic as well as academic forms of presentation being important. Decision-makers occur at all levels of an education system and do not just occupy the policy-making level. The democratic involvement of all sections of the community in the decision-making process means that researchers must be able to

communicate effectively at both the macro- and micro-levels of decision-making. Participants particularly stressed the importance of middle management staff, such as civil servants, administrators, inspectors, planners and local decision-makers, and the importance of communicating effectively with them to ensure the effective implementation of key research findings.

More specifically, seven different activities were suggested by participants as warranting special attention, as follows:

- the creation of a common research culture which is shared by all actors in the research endeavour;
- educational research institutions should be open to outside interest groups so that they become a true forum of debate on educational reforms;
- educational research brokers are necessary to enable greater ease of communication between the producers and consumers of educational research;
- the production of publicity materials would enable access to a wider audience, consisting of both lay people and professionals;
- the adoption of effective activities of social influence, such as workshops, face-to-face meetings, teacher seminars, meetings with policy-makers, interviews, etc.;
- the encouragement of local and regional research, with the participation of local authorities in addition to large-scale national and administrative events; and
- the training of teachers regarding how to implement educational research findings.

New emphases in research

Participants expressed the strong belief that there is a need to look beyond the traditional methodologies that have dominated educational research over the previous decades. In overall terms, they stressed the importance of placing greater emphasis on more qualitative approaches and action research, which stresses an interactive and dynamic approach to research involving negotiation between the producers and consumers of research. The following were identified as especially relevant:

- Diagnostic research to help identify problems before decision-making occurs. This involves such matters as exploratory studies, descriptions of the *status quo*, identification of decision-making needs and inventories of various types.
- Development research where the purpose is to develop a concrete product scientifically, examples being curriculum materials, tests, organizational models, educational software and policy measures.
- Evaluation research to support educational policy and practice. This kind of research is complementary to the work of inspectors and others involved in the monitoring of education systems.
- Critical research to focus on alternative models of education and grassroots proposals for the renovation of education systems as part of civil society.
- Ecological research involving case studies and the contextualization of research findings.
- Generic (or anticipatory) research which simulates the evolution of education systems, anticipates decisions and so provides predictive models to test proposed educational reforms before their actual implementation.
- Prognostic research that is futures oriented.
- Meta-analysis involving the integration of research findings on a particular theme.

THE NEW STATUS OF EDUCATIONAL RESEARCH

The role of the educational researcher has become increasingly diverse, being not just a producer of knowledge but also a functioning member of the wider society, a citizen, trainer, decision-maker and a user of statistical and information/documentation services.

Research findings are not value-free since the researcher is not a social engineer but an intellectual, responsible for the ethical and moral aspects of the findings.

In addition to his/her professional activities, the researcher is also a member of a wider community. This can create some conflicts, particularly when the professional activities of the researcher are not fully understood or accepted in the wider community. It follows that goodwill and openness are required on all sides to avoid possible misunderstandings between producers and users.

Information, documentation and dissemination: from the periphery to the centre

Documentation and dissemination of research information ought not to be seen as a peripheral activity. Without appropriate documentation and the facilitation of access to it, information is of no general use to policy-makers, practitioners or even other researchers. It will be a case of more information being known than understood.

A NEW PARTNERSHIP

The distinction in roles between researchers, documentalists and policy-makers creates a separation in the processes of knowledge production, dissemination and decision-making that limits the utility and application of research results and reduces the likelihood that research will address issues of genuine concern to policy-makers. A new partnership between researchers, documentalists and policy-makers is needed to avoid these problems.

The expression of this new partnership might vary from country to country and, perhaps, from issue to issue, but it needs to be based on mutual respect of expertise and an openness to the wisdom of others. As the partnership is developed, its growth is likely to be facilitated by face-to-face meetings with a focus on emerging policy issues of considerable importance. Initial meetings could clarify the policy questions, identify relevant existing research and mobilize strategies for locating further relevant research.

A stronger relationship between researchers, documentalists and policy-makers will strengthen the role of *direct* dissemination from research to policy-maker, with the additional effect of strengthening the influence of policy questions on research questions, but it does not address the *indirect* role of dissemination. Here the relationships are less formal and more complex, but can be equally powerful. The media provides the most general means of indirect dissemination by raising public awareness of policy issues and relevant research findings.

ROLE OF INFORMATION AND DOCUMENTATION

Documentation and information are not synonymous. There are diverse forms and sources of information, from raw data and demographic statistics to bibliographies. To this information, documentation should add selection, organization, interpretation and synthesis.

At times decision-makers prefer information to the products of documentation because unintegrated material can be used more selectively. Information can also more readily serve a role in legitimating policy decisions already taken or in development. Selection based on the

quality and relevance of information, and careful interpretative integration of the information will, however, offer a richer contribution to the policy-making process.

The scope of the information drawn on is also an important consideration since education is so clearly bound in a cultural context. Information from other contexts may be relevant but its relevance should not be taken for granted. In many circumstances, locally produced information will be most appropriate to local needs but ready access to potentially relevant information from the national, regional and international levels is essential. Some issues are clearly transnational—having even the status of genuinely global concerns. Forging stronger links between formal education and the training and development of the national workforce is one such example. Citizenship education may be another. For these, a careful comparative approach could yield a helpful international perspective.

Organization of Databases

It is one thing to say that information should be organized selectively in documentary databases and made readily accessible, but it is another to achieve this aim. There are many existing databases serving individual developed countries—such as ERIC (United States), AEI (Australia), CEI (Canada), BEI (United Kingdom)—or groups of developed countries—such as EURYDICE, EUDISED and CEDEFOP for Europe—but access to these is limited largely to participating countries served directly and tends to depend on access to sophisticated communications technology. There are special sources available to some regional groupings of developing countries—such as REDUC in Latin America—which have developed appropriate access strategies for the region. At the international level, UNESCO-IBE has developed a database, IBEDOCS, which seeks to serve all countries. The IBE has also started reporting on educational innovations and has created INNODATA for this purpose—a databank containing descriptions of innovative projects implemented in UNESCO's Member States. At present, the IBE is developing a full-text databank of the national reports presented by Member States of UNESCO to the 1994 International Conference on Education. It intends to make these databases available on CD-ROM and eventually on the Internet.

Any consideration of how to improve access for potential users must address the question of whether existing databases might be integrated so that access does not require searching large numbers of overlapping, independent databases. This could be achieved only if a universal thesaurus of educational descriptors could be negotiated and provided in as many languages as possible.

Access also depends on the organization of the database, not just the descriptors with which specific documents can be located. Databases should be organized from the point of view of users and not that of the documentalists who are the database developers. Database management must involve screening and selection for quality and relevance at the point of deposit of material in the database and monitoring for obsolescence for removal from the database. More significant would be a shift to comprehensive abstracts, with a critical dimension to provide readers with an evaluative assessment of the content (though the reader is then in the hands of the abstracter whose value position will shape the evaluation of the document). Some compensation could be provided by offering evaluations from several perspectives, perhaps by the inclusion of several evaluative abstracts for more significant documents, and by emphasizing the historical and cultural context of a piece of work and its implications for policy. A further important contribution could be made with more pro-active use of the material in a database to produce analytical reports to serve policy development.

In the final analysis, the coverage of databases will depend on the adequacy of strategies for document capture. The spectrum of research materials is becoming richer and

this should be reflected in the databases, but the extent of coverage needs to be carefully defined. A large array of categories could be considered: policy documents, annual reports, legislation, statistical compilations, the contents of journals, dissertations, conference papers, project reports, state-of-the-art reports, textbooks, curricula, teaching and training materials and evaluation instruments. Once the categories are established, it would be useful to establish, as universally as possible among authors and authorities a practice of routine deposit of the relevant documents. Comparability should be sought to the extent possible without compromising the material through imposition of an irrelevant straight-jacket. The use of indicators in addition to raw statistical reports on countries and systems is one means to achieve comparability. In the case of the country reports for the International Conference on Education, it may be possible for UNESCO-IBE to establish a common matrix for country reports to facilitate more ready comparison of national education systems. A standard, detailed questionnaire may facilitate adoption of a common structure.

Ownership of the information in databases will depend on access, which is more readily achieved by researchers and policy-makers in developed countries using languages in which the large databases are developed. The needs of those with less access to sophisticated communications technology and of those whose work is in less widely-used languages require special attention.

Personnel

Although a new partnership between researchers, documentalists and policy-makers has been proposed, documentalists will remain the key to the development and maintenance of effective databases. Their role, however, will need to change. Recruitment and training of documentalists in education will be a key to success. Professional bibliographic skills will be essential but a knowledge of the field of education will also be necessary if a more evaluative role is to be established. The result may be a new kind of professional—a kind of information broker who can stand between the researcher and the policy-maker, facilitating communication in a language each can understand and increasing the likelihood of common concerns being addressed. The information flow will be in both directions and more than research information will be involved. Within a ministry of education, the information broker could be an agent who takes, interprets and integrates not only research information but also the kind of information that typically flows from lobbyists and other advocacy groups.

Impact of New Technologies

Mention has already been made of the needs of those without access to sophisticated communications technology, but it is important that database developers keep up with developments in technology to make access as easy as possible for those users to whom the technology is available. The power of new technology can increase the likelihood of a database being accessed and used effectively.

The needs of developing countries should be addressed without compromising the capacity of databases to capitalize on the best communications technologies available. In the short term, developing countries could be provided with low technology access to databases with microfiche or other hard-copy materials. In the mid-term, developing countries need a communications infrastructure with which to access the extensive databases already used by their counterparts in developed countries. Funding agencies should see this as a priority.

Recommendations

Participants made the following recommendations as a follow-up to the NIER/UNESCO-IBE meeting. These recommendations are aimed at the:

- participants themselves;
- researchers, decision-makers and information specialists;
- educational practitioners such as teachers, school-level administrators and teacher educators;
- research institutions and information centres;
- international and regional organizations;
- the general public;
- funding agencies; and
- others.

ESTABLISHING AN INTERNATIONAL DATABASE ON COMPARATIVE STUDIES

There should be a process for convening international, regional and national representatives:

- to share information on the status of current databases on comparative studies;
- to design a world-wide system of databases accessible both to users and suppliers of information;
- to provide the organization and finance for these databases;
- to develop quality control mechanisms for entries;
- to ensure comparability of data among entries from different countries; and
- to consider the inclusion of contextual information so that information can be considered in relation to the social and political background of the countries.

Greater funding commitments by nations and international organizations should be made to international comparative studies of education. Particular emphasis should be placed on comprehensive system comparisons for two purposes:

- to better describe and analyze complex educational structures and practices and to provide an essential context for comparisons of the components of these systems across nations; and
- the search for variables which have high impact and cause changes in students' performance across nations. This is important for educational policy-makers and practitioners.

Regular collection of data by UNESCO on the condition of education throughout the world should be increased and enhanced. This basic data collection should be planned with co-operation of other international organizations for long-term collection of essential longitudinal information of trends within nations and among nations on the characteristics of education systems, educational practices and student performance.

- Enhance the reporting of innovations for incremental changes by standardizing the format for reporting of innovations.
- Include 'national and State-level curriculum plans', and 'school achievements' in the IBE database.
- The IBE, in collaboration with regional networks such as UNESCO-APEID, might promote the expansion of national education information systems to include information on all schools (for example, many countries have large private education sectors whose information is not included in the system).

- Management of information for local decision-makers, such as municipal education officers.

Co-operation among international and regional organizations in relation to the conduct and use of educational research

Organizations such as UNESCO, its regional offices (BREDA, OREALC, PROAP and UNEDBAS) and its specialized institutes (such as the IBE, IIEP and UIE), as well as OECD, APEC, UNICEF and IEA, should meet on an annual basis to exchange their research and study agendas, schedules, budgets and research plans for the next five-year planning period. They should attempt to co-ordinate their plans in a report each year which is made available to sponsors and funding agencies. The report would enable the international and regional organizations and the sponsoring nations to determine priorities for funding and encourage efficiency in co-operative activities. The annual meeting of the donor agencies which co-operate with developing countries is a privileged context in which educational research priorities could be disseminated and promoted.

International and regional organizations must have sufficient authority and reliable financing to enable: official reporting on education systems, descriptions and practices; continuing updates on changing practices; trends in performance; and reliable reporting to assure timely, quality information. The structures must use capacities in both the governmental and non-governmental sectors for completing projects and must assure access to the products. These organizations must co-operate more effectively to plan and implement their separate activities with a view to producing complementary results.

Comparative research

It is increasingly important to adopt an international perspective on educational developments, qualifications, education systems and interdependent relationships among countries. Variations among countries in these structures and practices provide a base for the investigation of the effects of these variations in a way that is not possible in a single system.

The participants identified the following directions for comparative work.

- Use local researchers as project leaders on comparative educational research in the developing world. It happens frequently that outside professionals are brought in to administer regional comparative studies. This often leads to decontextualized recommendations. By using local research teams, the national research capacity is also enhanced.
- Promote the use of information which is available in the national and regional networks, for example regional comparative research projects in Southeast Asia should use the SEARRAG information.
- The contribution of international professional associations (such as the World Council of Comparative Education Societies) must be reinforced.
- The IBE will examine the results of the meeting in order to identify useful elements for incorporation into its programme proposals for 1996–97, particularly in its comparative research and information activities.
- The IBE will prepare an analytical directory of educational information, research and documentation services.

Training

Plans should be developed for co-operation in planning the training of researchers and users of research such that this training takes place in the context of conducting or using research. The training should include a focus on:

- the synthesis (meta-analysis) of research in different countries;
- the use of comparative indicators (such as those being developed by the OECD); and
- the use of new qualitative methodologies.

Consideration should also be given to improving and sustaining the quality of educational research in all countries.

The IBE should organize at the international level (and at the regional level through programmes such as UNESCO-APEID) a training course for producers of educational information and for the users of educational information. These courses should incorporate the appropriate technology.

Regional and international courses are needed for information specialists and educational researchers which are orientated toward policy and decision-making and include advances in technology (for example, REDUC interactive software).

Where appropriate, training courses should be carried out within a network context (such as ERNESA) in order to place researchers and documentalists strategically.

On the basis of contributions from participating countries, the IBE will define a new profile for the information/documentation specialist and establish a training programme in accordance with this profile.

Forum

There should be a regular forum of national and international researchers, practitioners and policy-makers to take stock of major changes and trends in practices in various nations. Through this forum representatives might:

- assist nations to form sub-groups to examine practices especially pertinent to their proposed developments;
- anticipate substantial emerging issues so that databases can be established to enable trend information on practices and future impacts related to these issues; and
- discuss significant developments outside the field of education that should be better understood and analyzed for their potential impact on education.

Donor agencies should take into account the individual profile of countries in the developing world and should be sensitive to the particular needs of each country.

Regional fora are needed in order to build the agenda and offer short-term advice for decision-makers on the importance of educational information: both agenda building (long-term impact); and policy orientated (short-term impact).

There is a need for inter-regional meetings on the themes relevant to international and regional co-operation. The IBE should be increasingly focused on as an international broker for educational fora. The international meetings should incorporate decision-makers, researchers and information-disseminators to help bridge the gaps that exist between the interest groups and to assist nations to form subsets of nations to examine practices especially pertinent to their proposed developments.

Dissemination and advocacy

A major weakness of present efforts is in the communication between researcher, policy-makers and practitioners. It is not enough for researchers simply to report their work; in cases where it is to be used by policy-makers the researchers must be prepared to interpret it and provide it in a form which is effective and suitable for communicating advice to policy-makers.

Some suggested follow-up activities to be carried out by the IBE are:

- the IBE will serve as a facilitator of contact between the participants of the meeting and other specialists and institutions in terms of exchange and dissemination of results of the meeting;
- it will publish the final report of the meeting and disseminate it widely to the concerned specialist agencies and institutions;
- the main highlights of the meeting will be published in the next issue of the *Innovation* newsletter and widely disseminated; and
- the IBE can bring out short publications of research findings, 'policy news' and comparative studies undertaken by regional networks, such as UNESCO-APEID.

It was proposed that case studies be undertaken on the development of improved and effective links between educational researches and policy-makers. It was suggested that such a case study could be usefully undertaken in Bahrain, where there is a particularly close and effective relationships between researchers and policy-makers. Case studies on a variety of other countries would be undertaken as required.

Networks

International networks help to satisfy the needs of those who are less able to develop their own skills to work with the diversified and international contents of information.

In this context, the participants suggested that existing networks should:

- gain access to information for institutional capacity building, such as communication technology;
- build research capacity in the developing world, for example, by cutting down on their dependence on foreign researchers and helping to change the policies of those donor agencies which prefer foreign researchers in local research projects;
- build a network for decision-makers in education; and
- be organized around documentalists, researchers, information brokers and decision-makers.

Innovations and systemic reforms in the developing world may be the most appropriate for other developing countries because of the similarity of their development needs. Clear examples exist of comparable needs assessment and innovation sharing between developing countries. Therefore, we suggest that: co-operation between existing networks in the South be enhanced; these South-South linkages should be seen together with North-South sharing; and these linkages supported.

For countries with Internet access, a link can be made with the IBE. For those without access, other modes of linking will be necessary. The IBE maintains old technologies/methodologies as well as new ones.

Universities have natural networks among themselves and they should be used for that purpose. These are very useful where other types of networks are absent or weak.

Networks should be formed consisting of researchers, policy-makers and planners at the international and national levels. Where networks are weak, they should be strengthened.

Professional associations should be formed on a national level consisting of several actors (scholars, teachers, administrators, etc.). The designated national institutions linked to the IBE can serve networks with information, for example by using a newsletter.

ANNEX I: SUMMARIES OF COUNTRY REPORTS

ARGENTINA

This paper attempts to contribute to an understanding of the situation in the Argentine education system at the end of the twentieth century, employing the results of educational research and taking into consideration the framework of the main trends towards change and reform. It attempts also to contribute to a systematic approach to the main trends of Argentine educational research.

This summary is organized into six chapters: (i) some general information about Argentina; (ii) some aspects of the current educational situation; (iii) an interpretation of the transformation of the education system into a federal one; (iv) some aspects of curricular change; (v) some aspects of the internal State dynamics; and (vi) a first systematic approach to trends in research, educational policies and linkages among them

Some general information about Argentina

Argentina is a Latin American country with 35 million inhabitants, 8 million of whom live in Buenos Aires and its environs. The urban population is 88% and the illiteracy rate is 4%. There are 10 million students at all levels studying in 50,000 educational institutions. About 72% of the 5-year-old children are in kindergarten and enrolment in compulsory primary schools is about 95%. The drop-out rates range from 12% in the City of Buenos Aires to 52% in some rural areas. The main problems are linked to improving quality, equity and efficiency in order to step up the quality of life, deepen democracy and guarantee a better articulation into a globalized world.

Some aspects of the current educational situation

Argentine education is going through a process of profound change. This process is the result of a heterogeneous movement attempting to respond to many needs and demands using ideas from a variety of sources and involving constructive and obstructive practices on the part of many actors: teachers, researchers, decision-makers, parents, students. The results of the current transformation will be the emergence of a dramatically different education system from the one set up, shaped and expanded between approximately 1880 and 1910.

With the new Federal Education Law passed in Argentina in April 1993, Parliament faced the changes of recent decades and incorporated some suggestions put forward by different actors, especially since the transition to democracy in 1984. It has moved towards a decidedly federal education system.

Nowadays, the Federal Council of Culture and Education, chaired by the National Minister of Education and integrating the ministries of the twenty-three provinces and the Secretary of Education of the Municipality of Buenos Aires, is the entity responsible for introducing national educational agreements, particularly those on curricular change and teacher training. There is a provision for it to be assisted by two advisory councils, one technical, with the participation of academics and representatives of teachers' unions; and another including representatives of the economic and social sectors.

The new law also acts as a working plan for the administration that took office in November 1992. This is the first administration of a 'Ministry without schools'. It was faced with the legal obligation of setting up two federal systems and a network: the 'National System of Assessment of the Quality of Education'; the 'National Network of Educational Information'; and the 'National Teacher Training Network'. The same administration is encouraging the introduction of several processes, in particular curricular change, which were to have been initiated through the agreement on 'common basic contents' for all twenty-four of the country's educational jurisdictions.

Towards an interpretation of the transformation of the education system from a mixed centralized and federal system with a low level of institutional autonomy into a federal system with increasing institutional autonomy

Between 1968 and 1983 there was a long and difficult process of transfering establishments dependent on the national State to provincial jurisdictions and to the Municipality of Buenos Aires. The transfer of services with no articulation with other educational policies seemed to have triggered off new problems that coexisted with old ones; rather than—as was hoped—helping to solve them. Among them were: (a) organizational and administrative styles often remote from educational needs and demands; (b) an increase in certain costs without a clear improvement in the quality of services; and (c) the enormous difficulty of encouraging the participation of the educational communities.

As a separate topic, in the last few years there have been suggestions from very different standpoints that there is a need to increase the autonomy of educational institutions, without any clear perception that educational establishments had already embarked on such a process. But from some research studies it can be deduced that the exercise of autonomy is not always reflected in an improvement in educational supply contributing to the development of better quality, or more equitable and efficient education.

Some provinces and the national administration are developing projects to overcome the old organizational and administrative problems, as well as the new ones; and also to develop a new kind of school autonomy.

Some aspects of the current curricular changes and related policies

Since the restoration of democracy in 1984 there has been a movement towards curricular change and pedagogical innovation in many provinces and institutions across the country. One of the typical features of this movement was that it was piecemeal—not part of a process of reshaping the education system as a whole and therefore heterogeneous and lacking in articulation.

Besides the important motivating and mobilizing effects this movement has had, it has given rise to some paradoxes: (a) it has become more difficult for teachers and pupils to move from one province to another; (b) it has also become more difficult to have appropriate textbooks available, especially in the small provinces that were not an attractive market for publishers; (c) existing technical capacity was not exploited with a view to supplying the population of the whole country; and (d) certain risks were run in terms of education's contribution to national unity.

Realization of these unforeseen effects and of some quality problems in curricular proposals underlined the need to have 'common basic contents', such as those approved by the Federal Council for Culture and Education in November 1994.

The dynamics of the process of developing these 'common basic contents' was a very interesting, new and original one. It consisted of three different but convergent circuits: a 'technical' one; a 'federal' one; and a 'national' one. More than 2,000 'decisions makers' (teachers, planners, principals, etc.) participated in them. The participation of researchers—not only educational

researchers, but particularly researchers on the basic and social sciences—was a very important step.

As a part of the 'technical' circuit, contract-research was demanded by the National Ministry of Education to obtain more information from the working sectors, families and young people; and especially about what it was necessary to learn at school.

Unlike the great bulk of existing curricular designs, the 'common basic contents' are related to the attempt to direct education towards training in basic, essential skills, introducing or underlining as contents much that has to do with processes, and stressing the development of the capacity to conceptualize rather than the memorization of factual contents.

Some aspects of the dynamics of the national State and the twenty-four educational jurisdictions

The national State is acting as the promoter, articulator and only possible leader on the road from the 'deconfiguration' and 'fragmentation' of the Argentine education system towards a reshaping of it. However, its capacity to promote and articulate may well be weakened in the short term due to particular burning issues in some provincial states.

The present problems on this subject are: (a) the unsuitability of the old organizational structures for the new challenges and functions to be performed; (b) the lack of adequate professional training for a significant percentage of the staff; (c) the difficulties in setting in motion the bodies for consulting the community; (d) the difficulties in drawing up joint programmes and projects with allied ministries, universities and NGOs; and (e) some inherited features of the institutional culture, such the inertia of some inflexible routines, the lack of will or ability of the average civil servant to take decisions and the trend towards the dispersal of responsibility for errors.

Special programmes and policies of State reform are attempting to overcome these handicaps.

Approaches to a systematic examination of some aspects of the production, availability and use of educational research for decision-making

Educational research in Argentina is carried out by some of the more than fifty universities, one intergovernmental organization (FLACSO), one international organization (UNICEF), some private centres and some departments of the national and provincial ministries of education.

Educational research is supported by the universities themselves, by the national and some provincial governments through the Councils of Research and Development and by some national and international foundations (Antorchas, IDRC, Ford-Foundation, van Leer Foundation). To some extent, studies are also supported by UNESCO, OEI and other international organizations. Some feasibility studies are supported by the World Bank and by the International Bank for Reconstruction and Development.

Training of researchers is organized by universities and by FLACSO. In the latter case, it is organized on the basis of an agreement between the Ministry of Education and the DAAD (*Deutscher Akademischer Austauschdienst*). FLACSO is a Latin American governmental organization, which receives students from Argentina and from other Latin American countries and professors from developed and developing countries.

There are in Argentina at least ten educational reviews, but only four research reviews. Nearly all of them began to be published after 1984. REDUC abstracts are also selected and published in Argentina.

A first analysis of the production, availability and use of educational research leads to the following list of ten main trends.

1. There would seem to be a reasonable amount of research available dealing with the follow-up of trends and policies from the standpoint of the education system as a whole, with an emphasis on the analysis of needs, requirements, proposals, laws and quantitative series.
2. It would appear that specific research relating to less classical topics, more associated with the possibility of taking the right decisions to solve new problems, or to solve old problems but set in real contexts, is much scarcer—and what use is made of the little research available based on such approaches is extremely inadequate.
3. It would appear that the topics most related to the possibility of designing new practical alternatives have received more research—albeit not sufficient—than those relating to the viability of new practical alternatives. In this sense, the lack of research on the internal dynamics of the sector, on teaching models and styles, and on costs is particularly worrying. It would appear that the existing research could help to define policies, but is absolutely inadequate to guarantee effective, efficient improvements in the daily life of institutions and schools, particularly in a context of scarce resources.
4. There seems to be a trend for research on certain topics to be generated in certain types of institutions, which are apparently the ones intending to use the research on these same topics.
5. Most of the research produced circulates as 'grey literature', working papers, unpublished master's theses and feasibility reports of restricted circulation.
6. Well-organized research circuits do not exist. Only now are universities, research centres, the twenty-four ministries and the teacher-training establishments throughout the country being connected to Internet, as well as to a network of their own.
7. For the first time in the country's history, a group of critical professional researchers and a certain training capacity for research has been developed, particularly using approaches from educational sociology and policy. This research had begun to develop between 1982 and 1989 through various processes, one of which was the more dynamic activity of the CONICET (National Council for Scientific and Technological Research).
8. But there is an increasing neglect of incipient basic educational research. Since 1989, the CONICET seems to have slowed down the process of improvement of basic research that appeared to be starting to reveal interesting developments. Instead of that basic research, there is now a type of research directed at decision-making, which is interesting, but of a strictly descriptive nature. Such research seems to have, but actually lacks, high predictive potential.
9. The National Ministry of Education as well as the provinces need more research, but the search for professionalization of the civil service means that use is made of researchers, who often give up their professional practice to join national State bodies, provincial state bodies or the two large investment projects that are just starting up (World Bank and the International Bank for Reconstruction and Development).
10. There is an increasing participation in international comparative research, especially on studies carried out by UNESCO agencies (IBE, OREALC).

In conclusion, it can be said that when democracy began to be restored in 1984 there were hardly any educational policies and research to improve the quality, equity and effectiveness of the education system.

If that situation is taken as a reference, there is no doubt that progress in both sectors and in linkages between them has been made. But progress is still weak and not enough to support the current—and especially the necessary—changes in education and in the education system.

AUSTRALIA

Pressing issues in education

Australia is a federation in which the constitutional responsibility for education rests with the six states and two territories, and not with the national government. There is, therefore, no national education system; there are six state and two territory systems. Despite this, a national perspective on many educational issues is increasingly being achieved through co-operation between the states and territories, with the active support of the federal government.

As in many other countries, educational reform is influenced substantially by economic considerations. Many parts of the economy have been deregulated and exposed to international competition and, as a result, the education sector is expected to play a part in changing and raising the skill level of the Australian workforce. Beyond secondary schooling, more accessible pathways into higher education and vocational education and training are being developed. In this context, six pressing issues for primary and secondary education stand out in all eight systems. They are:

- development of a curriculum framework expressed in terms of student learning outcomes;
- strengthening the links between education, training and work;
- extending the use of new technology;
- increasing self-management in public schools;
- improving access and equity; and
- improving the quality of the teaching force.

In April 1989, the state, territory and federal ministers of education adopted ten national goals of schooling which can be summarized as being:

- to develop all young people to their full potential in ways relevant to the social, cultural and economic needs of the nation;
- to enable all students to achieve high standards of learning and to develop self-confidence and respect for others;
- to promote equality of educational opportunities;
- to respond to the economic and social needs of the nation;
- to provide a foundation for further education and training;
- to develop in students:
  - — English literacy in listening, speaking, reading and writing;
  - — mathematical skills;
  - — analysis and problem solving skills;
  - — information processing and computing skills;
  - — an understanding of the role of science and technology in society;
  - — a knowledge of Australia's historical and geographical contexts;
  - — a knowledge of languages other than English;
  - — an appreciation of and confidence to participate in the creative arts;
  - — concern for balanced development and the global environment; and
  - — judgement in matters of morality, ethics and social justice.
- to develop knowledge, skills, attitudes and values to participate as informed citizens in a democratic society within an international context;
- to develop a respect for Australia's cultural heritage, including the particular cultural background of Aboriginal and ethnic groups;
- to provide for physical development and personal health and fitness; and
- to provide career education and knowledge of the world of work.

From these national goals, the ministers adopted the following eight broad learning areas as the overall structure of the curriculum: the arts; English; health and physical education; languages other than English; mathematics; science; studies of society and environment; and technology.

There is debate about how well this structure works. One criticism is that some areas, such as studies of society and environment, are too broad and even incoherent. A second criticism is that no clear values framework underlies the eight learning areas, although values are specified as a desired outcome in specific learning areas, such as health and physical education. As a response, Christian (Anglican and Catholic), Islamic and Jewish schools in Western Australia have collaborated to develop a minimum values framework that might legitimately be addressed in all schools and the government education authorities are now working further with the group.

For each of the eight key learning areas, a statement and a profile have been prepared. The statements provide a framework for what will be taught, defining a learning area in terms of strands that specify content and process. Profiles set out what students are expected to learn, describing the progression in learning outcomes typically achieved by students. Profiles are sequenced into eight levels which correspond roughly to the first ten years of schooling. National statements and profiles are now available for all eight learning areas but responsibility for determining whether and in what form they are used now rests with the individual states and territories. The smaller states and territories are using the national materials. The larger ones are adapting them in various ways, the most substantial changes being made in Victoria where the final level has been dropped and the remaining seven levels have been tied to specific years of schooling.

Although there are variations in the details, all states and territories are defining their curriculum frameworks in terms of student learning outcomes. This is a radical shift from specification in terms of what will be taught to what will be learned, but it has only a limited research base. It is, however, a shift which allows programmes the possibility to monitor student achievement levels driven by the curriculum. Profiles describe 'the progression of learning typically achieved by students during the compulsory years of schooling (years 1–10)' and have the twofold purpose 'to help teaching and learning and to provide a framework for reporting student achievement.' Monitoring programmes can use assessment procedures keyed to the profiles and thus achieve curriculum validity while providing data on student performances with which to validate the structure of the profiles and amend them as necessary.

Behind the new emphasis on learning outcomes as a way of specifying the curriculum is, at least in part, a desire to forge a stronger link between schooling and post-school training and work. An alternative approach to that adopted in the eight key learning areas is to focus on more general skills, six of which have been nominated as employment-related key competencies. They are: language and communication; mathematics; scientific and technological understanding; cultural understanding; problem solving; and personal and interpersonal competencies.

The nomination of generic competencies as desired outcomes of education and training may be an inevitable consequence of giving a committee of inquiry a general brief, but the idea has gathered a great deal of momentum despite there being grounds for serious concerns with the approach. Research on the nature and acquisition of expertise makes clear that expertise is domain specific. There may not be many general skills that will transfer readily between domains. More importantly, it is reasonably clear that the generic competencies are best developed in the context of systematic skill development in specific domains and not by direct attempts to develop them in a generic fashion.

All of the Australian education systems are increasing their use of modern technology, particularly communications technology. These technologies are being used to widen access to

education through the extension of distance learning opportunities. The in-school use of computers is increasing beyond the development of computer literacy to the active use of computers as tools for learning. Once the communication facilities are in place, computer use can be extended to teacher professional development programmes as well—particularly for teachers in rural areas.

There is a risk with new technologies that their use in education will be driven by their availability and strong marketing by suppliers and not by any clear evidence of beneficial impact. Good research evidence exists on ways in which computers can serve as cognitive tools to enhance learning but this does not always shape the way in which they are introduced into schools.

The state governments' education systems were highly centralized. The first steps towards granting more autonomy to schools came with a move to a school-based curriculum but the recent development of the national curriculum statements and profiles has reversed that trend. Other more radical patterns of devolution are currently being implemented. These give government schools much more control over their budgets, with the power to determine the kind of personnel to be employed, the allocation of resources to support curriculum priorities and teacher professional development programmes and so on. These changes dramatically alter the role of the principal and introduce special professional development needs for principals. The shift in responsibility to schools is based on philosophy and ideology more than research but research studies have been commissioned to inform the process.

Improving access to education for disadvantaged groups and thus improving equity in the school systems is a national priority about which all state and territory education systems are agreed. Programmes in recent years have focused on girls, students of Aboriginal and Torres Strait Islander backgrounds, students in rural and remote areas, students from non-English speaking backgrounds, gifted and talented students, socio-economically disadvantaged students, students with special needs due to physical or intellectual disability, and subject choice in the upper secondary years (to identify groups whose subject choice limits subsequent options). Recently, the needs of boys have been raised as a potential new priority as research and other evidence accumulates of their over-representation in groups with low performance.

In recent years there have been limited opportunities for the employment of new teachers. Declining enrolments and substantial cutbacks in public expenditure have consequently reduced the numbers of teachers in government school systems. The average age of teachers in Australia is now over 40 years old. As a consequence, school-leavers with strong academic preparation are less likely than in the past to become teachers and the status of teachers and the teaching profession continues to decline. The success of the reforms will depend on raising the skill levels and changing the practices of established teachers, and not in the recruitment of new teachers.

Research

Relevant research is being undertaken for each of the pressing current issues. While some research informs policy development, some of it investigates the impact and effectiveness of new policies. Nevertheless, the links between research and policy development are not always strong. This has been made clear in two national reviews of educational research and development in Australia conducted between 1991–93. One was a general review of the whole enterprise, while the other was a more specific review of research and development in vocational education and training.

The general review was initiated by the Australian Research Council, the federal government agency responsible for recommending funding for research in all disciplines,

primarily in higher education institutions. The more specific review of research and development in vocational education and training was commissioned by the Vocational Education, Employment and Training Advisory Committee (VEETAC), a committee established by the national council of Ministers of Vocational Education and Training because of concern that there was an inadequate 'research and development base to guide the implementation of reforms and the best use of resources.'

The educational research enterprise in Australia is relatively large and diverse, with most research being undertaken in universities. The forms of research and development in education can be classified into the categories of applied research (45% of expenditure), experimental development (30% of expenditure) and basic research (25% of expenditure).

In the last ten to fifteen years, the focus and forms of educational research have changed, with growth in educational philosophy and policy studies and decline in educational psychology and sociology. In substantive terms, there has been an increase in research on literacy and language education, mathematics and science education, special education, gender issues, teacher education and policy issues. In methodological terms, there has been increased use of paradigms from philosophy, critical theory, feminism and economics, and decreased use of paradigms from psychology. Use of qualitative methods has increased and, in the case of quantitative work, use of multivariate methods has increased.

The general review concluded that the educational research and development enterprise in Australia has many strengths and continues to improve. A specific indication of this force was that funding for basic educational research through the competitive programme of the Australian Research Council had grown to the point where education was third after psychology and economics in funding in the social sciences.

The review also found a general perception among education administrators and practitioners that research was irrelevant to their concerns; a feeling among researchers that they lacked support from government agencies and the higher education sector; low levels of funding (compared with that for other fields); and a lack of co-ordination and planning for recruitment and training of new educational researchers. The review of research and development in vocational education and training reached similar conclusions but found the general state of research to be more limited since educational researchers had tended to concentrate on schooling and higher education.

Total expenditure on educational research and development in Australia represented 0.35% of total education expenditure. In the specific category of vocational education and training, expenditure on research and development represented only 0.22% of total expenditure. By comparison, 1.40% of health expenditure was allocated to research and development and the federal government has since committed itself to increasing that rate to 2.0% of total health expenditure.

Both reviews offered criteria for future educational research and development priorities and nominated specific priorities which included:

- areas of continuing importance for fundamental research, initially the teaching of thinking skills, learning in the pre-school and adult years and assessment of student learning;
- the organization and management of educational structures, particularly in systems with devolved responsibilities;
- revision and improvement of specific areas of the curriculum, initially mathematics, science, and language and literacy;
- competency-based training and assessment;
- economic benefits of education and training and links between training and productivity;

- the potential role of practitioners as researchers; and
- approaches to dissemination and use of research.

Both reviews sought ways of strengthening the links between the concerns of policy-makers and the work of the educational research community. They looked not only to a short term research agenda that addressed current policy concerns but also to strategies for establishing enduring links that would bring the two communities closer together and make them mutually reinforcing.

The *Australian Education Index*, developed by the Australian Council for Educational Research, is a national database of publications on education with particular emphasis on research. It is now available in hard copy, electronically for on-line searching and on CD-ROM. For curriculum materials, the national Curriculum Corporation is developing the Curriculum Information Database for use by curriculum officers in education systems and by educational consultants. The annual *National Report on Schooling in Australia* and its statistical annexes provide reports on policy development and programme initiatives in each state and territory, as well as demographic and financial details of the systems.

All Australian education institutions have access to the indexed research information produced in the United States by ERIC and are increasingly using the Internet to locate information and to establish contact with others.

Obstacles

The major obstacles to greater use of research and information lie in differences in the work practices and cultures of the policy-making and research communities. Often the research community is insufficiently attuned to the current questions engaging policy-makers. Furthermore, the timelines of policy-makers are typically so short that new research commissioned to inform policy development would be unlikely to be completed in time to inform the development process.

To avoid these mismatches in agendas and programmes, mechanisms must set the research agenda in ways that are informed by the concerns of the policy-makers. This is difficult to achieve with university-based research since it is largely uncoordinated and in the hands of the researchers. The Australian Council for Educational Research, an independent national research organization, sets its priorities in consultation with policy-makers in the education systems.

The two reviews of educational research proposed new, general mechanisms for forging better links between researchers, policy-makers and practitioners. The more elaborate suggestion of the establishment of an Education and Training Research Board has not been taken up. Adoption of that proposal required the financial support of a diverse set of agencies. The more specific suggestions regarding the review of research in vocational education and training have been implemented with the establishment of a Research Advisory Council by the Australian National Training Authority and the provision of funds for that Council to establish a new research grants scheme specifically for vocational education and training.

BAHRAIN

Formal education in Bahrain was initiated in 1919. The first primary school for boys was established by a number of Bahrainis who financed the school. Today, formal schooling in Bahrain extends over twelve years. Educational policy and goals are influenced and dictated mainly by Islam, as well as by the Constitution and the requirements of development. In the state schools, the Ministry of Education (MOE) ensures that all plans are formulated within the framework of the above influences. The revenues of the State are deeply affected by the rise and fall of oil prices. The Gulf Crisis in 1991 reduced all economic activity and consequently decreased the state budget, which led to financial restrictions. The MOE normally receives priority when resources are allocated.

Numerous problems are evident in the Bahraini education system. Social values in Bahrain have restricted opportunities for girls in vocational education and commercial subjects. In 1994, commercial education enrolled 5.7% of all females at the secondary level. Most females who graduate from commercial secondary education are unemployed. Moreover, the MOE faces the problem of male students' abstention from the teaching profession which affects the development of the primary school teachers plan in boys' schools.

Undoubtedly, the most important issue that worries social and educational authorities in Bahrain is unemployment. On several occasions the education system has been accused of not providing graduates with appropriate knowledge and skills. Consequently, the greatest educational issue in Bahrain is the poor performance of graduates.

Educational reforms in Bahrain have led to a new organizational approach in which the school is considered the optimum educational unit. It aims to promote democratic practice within the schools through an administrative board or council that represents the administrators and teachers. The board is mainly responsible for planning, supervising and controlling the educational and organizational policies of the school. By identifying the school as a basic educational unit, this reform has affected both the administrative procedures and the educational process within each school. The plan concentrates on giving more autonomy to schools in order to empower the headteacher and the teaching staff to take various decisions. It began in ten schools in 1990–91 as an experimental project and will be extended systematically in the future.

Educational research, educational reform and decision-making

Before the establishment of the Educational Research and Development Centre (ERDC), a few academic theses written by Master's degree students and some articles and studies edited by the College of Education's faculty were the sole component of educational research in Bahrain. They were too 'schoolish' to be reliable and to affect decision-making. The ERDC adopted a new research approach founded on the belief that the political authorities would take research findings into account when making decisions if genuinely useful research was available. For this reason the ERDC set down a research conception based on new approaches: stressing the functioning process, dissecting actions and reactions mechanisms; and attempting to reveal the real stakes behind MOE's decisions, as well as resistance towards measures set down by educational authorities. By focusing their research activities in this way, the ERDC is in a position to influence educational decisions and implementation at a time when other educational research is not considered.

The ERDC's successes in influencing decision-making

Above all, the ERDC was established because high officials in the ministry were convinced that educational reforms must be founded on scientific bases, a dependable theoretical background, structured socio-economic stakes and on positive ethical norms. They were also convinced that educational research could be the most effective tool to ensure the relevance of a reform's requirements and components. Therefore, they decided to found the first educational research centre in Bahrain.

Most of the research programmes carried out by the ERDC are scheduled into the five-year ministry plan. Several planned projects are kept completely unimplemented while awaiting the research results from projects already underway. This exemplifies how significantly educational research findings are expected to intervene in reform conception and implementation.

Another crucial reason that the ERDC has been successful in encouraging the use of educational research findings for reform and decision-making could be found in the country's political stability. The mandate of the ministerial officials is long enough to encourage them to conceive, construct, propose and carry out several reforms, as well as to see their successes. In this case, research findings are always welcomed to strengthen the rationale of initiatives already undertaken, to support the scientific foundations of proposed projects, and especially to resolve the new problems emerging in education.

The ERDC prefers a qualitative approach to basic research. New data, techniques and conceptions of validity (ridding the objectivity concept of its classical requirements—reliability and normativity) have been adopted in order to conduct research on authentic educational problems. Moreover, the ERDC has bluntly criticized the MOE's functioning and field behaviour.

The ERDC has established a whole strategy to create an ambient culture based on stakes awareness, high expectations, intellectual curiosity and increasing acceptance of criticism. A few of the actions which were carried out by the ERDC in order to cultivate sensitivity towards the role of research in shaking the status quo, provoking innovations and designing reforms are described below.

Every Bahraini educational research finding is presented and discussed during a weekly meeting chaired by the Minister and attended by the Under-Secretary, the four Assistant Under-Secretaries and the top twenty directors of the MOE. In most cases, this meeting (in which educational policies are developed) supports research findings and recommends that they should be incorporated into future educational decisions and actions.

After the publication of new research, a debate about its findings is held. The debate is normally attended by the Minister, most of the directors, some senior specialists of the MOE and by approximately 150 headmasters and teachers. One month before the debate, a copy of the published research is sent to every participant.

An informative seminar is held fortnightly for the educational staff of five schools (about 200 teachers and educational administrators) in order to explain to all teachers the main ideas of current research. Participants are expected to have read the research so that they can ask questions, discuss content, criticize, elaborate new ideas and detect limitations.

Once the research is published, a copy is sent to the local newspapers. Every newspaper is encouraged to present components of the findings that its readership might find interesting. Newspapers present the theoretical foundations, data collection techniques and treatment, or analyze the findings. Consequently, educational research findings have become increasingly visible in different components of general culture so that it is almost impossible to not have some concern with educational research findings. In Bahrain, one does not dare to claim to be

an intellectual interested in the country's educational issues, without having somewhere or somehow some concern about research findings.

In view of the examples mentioned above, it becomes very difficult for educational decision-makers to disregard what is forming a significant part of the general culture of Bahraini teachers, intellectuals and parents. Decision-makers convert research findings into normative criteria to assess the education system's performance and/or into parental expectations likely to bring about intensive social pressures in the future. Of course, conducting educational research to influence decision-making could not be carried out without the sincere will of the political authorities.

Obstacles preventing implementation of educational reforms, innovations and decisions

Concerning the use of research findings, the problem is located below the decision-making level. Bahraini educational authorities are always willing to use research findings for reform and decision-making. Once a reform was developed, the decision made, the training carried out, the preliminary preparations set down and once all those concerned were supposedly ready for the implementation task, a great number of field practitioners tried hard to protect their own educational beliefs and practices from external interference. To stop the élan of the proposed innovations they stress their traditional practices and neglect new ones.

We can certainly observe the paradoxical behaviour of a great part of teachers who previously were described as supporters of using research findings in the Ministry's decisions. In fact, this group of teachers remain enthusiastic to support such findings as long as these findings are presented as a controversial matter, and therefore as long as their support could bring them in some intellectual distinction or some moral credit concerning the leadership struggle.

It goes without saying that a big difference in matter of commitment exists between, on the one side, any attitude towards research findings seen as convincing ideas, attractive innovations or solutions of pressing problems; and on the other side, the adoption and implementation of the different measures advocated in order to materialize these findings. In reality, most of the field practitioners are not so enthusiastic to carry out any practice which implies mastering new or additional skills. Therefore, when reforms fail the bureaucracy can claim that it was not from their lack of effort. A second problem is that an educational innovation has to pass through a multitude of offices before reaching the practitioner. It is subjected to a progressive metamorphosis which makes it lose its original nature and brings it closer to old practices. Moreover, every time a new innovation is launched, it brings into play the balance of power and the interests of educational agents, social strata and other pressure groups. Finally, resistance to innovation (often based on educational research findings) by all whose prerogatives and/or interests are likely to be menaced and/or restricted, is a normal and expected phenomena. In this respect, we should not forget how much an educational innovation could, once carried out, alter high political stakes.

BOTSWANA

This paper discusses both educational reform and educational research environments in Botswana. It highlights current pressing educational issues in the country and analyses the role and impact of educational research in the reform process. Obstacles hindering better utilization of educational research information for decision-making and strategies to address them are also presented.

Current educational issues

The process of educational reform in Botswana has been characterized by the appointment of national commissions on education and the preparation of six-year national development plans. The Second White Paper containing the current national policy on education was published in 1994. This policy delineates some of the most pressing issues facing the education system. These relate to access, equity, relevance, efficiency, quality, information and research needs. The Commission reported that the current situation depicts a low level of access to basic education and other levels. For instance, about 17% of primary school age children are not in school. Equity issues which were pointed out by the first Commission have not gone away. The most obvious is the rural-urban disparity evident in terms of enrolment, allocation of resources and efficiency in delivery systems. Rural areas have the highest drop-out rate and the lowest pass rate in addition to employing the highest number of unqualified teachers. The curriculum is still not relevant to the world of work and the current needs of economic development. Many school-leavers cannot find jobs nor further training. The education system requires effective management and cost effective financing systems. The development of educational managers and review of the delivery systems are critical to improving education. Methods must be developed in order to involve communities in the financing and governance of education. Addressing these issues becomes significant only if they assist to improve the quality of education and subsequently the lives of the citizens. The development of the teaching profession has been identified as the main strategy for addressing the quality of education because teachers have the greatest impact on the success of any education system.

The educational research environment indicates that there are five key players in educational research in Botswana: the Botswana Educational Research Association (BERA); the National Institute of Research and Documentation; the Centre for Graduate Studies in Education; and the Ministry of Education; and libraries. From research reviews and other studies, it can be concluded that educational research in Botswana is faced with three main problems—co-ordination, training and dissemination. There is a lack of co-ordination of activities between institutions involved in research. Each institution sets its research agenda, solicits funds and executes all of its activities with little knowledge of what the other institutions are doing. This situation affects the flow of information and has led to duplication of research efforts. The lack of co-ordination of research priorities affects theory building. In summary, one could say that educational research in Botswana, while supported by a politically stable and economically sound environment, is faced with co-ordination problems of the key players and of research priorities, poor dissemination mechanisms and a lack of local researchers. However, with the new policy emphasizing the role of research and the emergence of regional networking and information sharing opportunities, the situation is most likely to improve.

Role and impact of educational research

The role of educational research in the planning process is reflected in the work of national commissions on education and in the development of six-year plans (NDPs). The first Commission on Education carried out ten studies, four of which were surveys which provided mainly quantitative data. Three studies provided mainly qualitative data, while two provided significant amounts of both quantitative and qualitative data. Therefore, this Commission utilized more quantitative data than qualitative, reflecting a *rational model* of planning. The second Commission carried out sixteen studies; four of which can be described as mainly quantitative, six qualitative, three had a good balance of both methodologies and one was an opinion paper. The Commission also undertook two tours to collect public opinion and experiences. Additionally it received a great deal of written submissions from individuals and organizations. These encounters could reasonably be viewed as providing qualitative data. Hence, this commission utilized more qualitative data, reflecting an *interactive model* of planning, and clearly stated that research should guide the educational planning process through sound statistics and research findings.

On the second level of planning (the NDP level), examining the seventh NDP one quickly observes a reliance on quantitative data since this plan emerged from the policy formulated by the first Commission. It stands to reason that the eighth NDP will rely mainly on qualitative data as it will emerge from policy formulated from the recommendations of the second Commission. Issues of quality, efficiency and cost effectiveness are now being emphasized, calling for a shift to the interactive model of planning.

The impact of research on educational reform is difficult to measure as the concept of utilization is complex and can only be understood by carrying out longitudinal studies which trace the role and impact of specific studies within specific contexts. It is these kinds of analyses that can help us develop a framework for research utilization for decision-making. These analyses will take us to deeper levels of not only looking at the impact of research on policy but on actual implementation as well. Studies of this nature have clearly indicated that it is not only the influence on policy formulation (making a decision) that matters, but also how that policy is implemented (if at all). An attempt to analyze the utility level of research in Botswana has indicated that some studies have had a direct impact on policy yet no impact at the implementation level. Others have had a creeping effect on policy and no impact implementation, while some have had no impact at all. The second reason this link is complex is the lack of definition as to what constitutes research in relation to decision-making processes at various levels.

Obstacles

Obstacles preventing greater use of educational research for educational reform in Botswana include: the uncoordinated nature of research topics and research institutions; lack of relevant data and information to inform decisions; research not reaching the media to be a part of public debate; lack of control measures to guard against valuable data and findings being taken out of the country; findings without practical recommendations; and the dominance of individually initiated research.

If research is to impact policy, strategies which bring policy-makers and researchers together to dialogue on educational issues should be encouraged. A key strategy should be strengthening national associations which are free from bureaucratic processes and can create conditions for personal contacts between individuals in ministries of education and researchers. There is also a necessity to train documentalists and sensitize them to the needs of researchers

and policy-makers in accessing information. For research to influence reform at the implementation level (for instance, in the classroom) education officers should be trained in research skills because their jobs expose them to the data necessary to improve the quality of education through classroom instruction and school management.

BRAZIL

Underdevelopment and education

The 1988 Brazilian Constitution was drafted as the cornerstone of the country's democratization process after seventeen years of authoritarian rule. It established an ambitious and comprehensive school system which aims to provide ample educational opportunities to every child in the country. Additional legislation contributed to assuring and broadening the right to education. The Constitution also assures that education is completely free at all levels, including the university. The school system consists of: nursery school for children under 4 years; pre-school for children between 4 and 6 years; eight years of compulsory basic school; three years of high school; four to six years of higher education; and graduate school.

However, the Brazilian government has not been able to fulfil its educational ideal. It is true that much has already been done, particularly if we consider that as recently as 1950, half the population above 15 years of age was illiterate and only 36% of children between 7–14 years of age were attending school. Today more than 90% of children (28 million) have access to regular school; those who have not are heavily concentrated in pockets of poverty localized in rural areas. Illiteracy has fallen to 18% and is concentrated among those above 40 years of age.

The available data also indicates a growing number of kindergarten enrolments in Brazil's education system. This is important because it implies offering additional and relevant social and educational services to the low-income population which sorely needs them in order to overcome cultural limitations. This accomplishment required a large effort, particularly when we consider that during this period Brazil had one of the highest fertility rates in the world and enormous population growth. Only in the last decade has this trend slowed down.

In spite of all that has been accomplished, we must recognize that serious deficiencies in the Brazilian education system pose grave obstacles to social and economic development. Access to basic education has not been uniformly assured. Surveys from various states demonstrate that we have persistent educational deficits, especially in the Northeast. In these regions, the influence of the traditional elite have thwarted the expansion of the school system, especially in rural areas. These localized obstacles are among the major factors preventing effective universalization of basic education. The school systems' irregular spatial distribution is thus associated with other negative characteristics, such as local clientism. We must recognize that the quality of teaching, both public and private and at all levels, is extremely deficient. Other problems include that, in spite of the quasi-universalization of school access that we have achieved, far too few students finish the eight years of mandatory basic education; that secondary level teaching does not adequately prepare students for either entering universities or the labour market; that university education does not assure the highly qualified human resources that the country needs; and that research is, in most cases, incipient or non-existent. But this should not keep us from recognizing that much has already been

accomplished and it is on these successes that the education system can and should be improved.

The government's responsibility for education

Brazilian legislation has repeatedly asserted the government's responsibility for education. Existing data indicates that the laws are largely being enforced and that the State is indeed fulfilling its responsibility towards basic education.

In 1989, of the 27,500,000 children enrolled in basic schools, 87.5% attended the free public schools maintained by tax revenues. The attendance rate for public establishments is very high at the primary school level and demonstrates the effectiveness of legislation obliging the State to make public basic education universal. The relative enrolment in public pre- and secondary schools is also rather high, reaching 70% of all enrolments. Enrolment in private institutions predominates only in higher education.

Governmental responsibility for education involves massive budgetary resources. In a country like Brazil where most of the population lives on the brink of poverty, directing public resources to education (as well as to health and other public services in general) is essential not only for promoting economic and social development, but for reducing the excessively unequal distribution of income as well.

The 1988 Constitution requires the federal government to apply at least 18% of tax revenues to education—and states and municipalities, no less than 25%. This provision has generally been respected and has been responsible for increased educational spending since 1989. In 1990, educational spending reached 20 billion dollars.

The lowest percentage occurred in 1988, when it barely surpassed 3% of Brazil's gross domestic product (GDP). With the new Constitution, the percentage rose substantially, reaching 4.2% of the 1990 GDP. This clearly demonstrates the importance of constitutionally linking percentages of tax revenues to education as an instrument for assuring increased public investment in this area.

The differentiated roles of the federal, state and municipal governments

The data that we have presented is the result of actions by the three spheres of government (federal, state and municipal) which have different roles and responsibilities.

Historically, Brazil has given the responsibility for basic education to the states (and to municipalities), while reserving a fundamental role in higher education for the federal government. Since mandatory education is the heart of the entire education system, the states and municipalities have the central role in developing national education, and not the federal government.

In theory, the principle established by current legislation of making both the states and municipalities responsible for basic education is adequate—since collaboration by both is indispensable for obtaining wider and more efficient attention to the population's educational needs. But the education system suffers from not having a clear division of responsibility between these two spheres.

The result has been that in many regions, particularly in the Northeast, the state maintains a small network of good schools, while very poor municipalities are not able to provide reasonable schooling to a large number of children. In the Southern region, the trend has been the opposite: very rich municipalities concentrate their resources in a small number of good schools and the state resources are insufficient to provide quality education for all the other children. Thus, there is enormous inequality evident in the offering of education facilities.

In the traditional and legal division of responsibilities of the different levels of public education, the federal government is principally responsible for higher education.

The Ministry of Education—roles and functions

The fundamental role of the Ministry of Education and Sports (MEC) should be to formulate national policy, to orient and co-ordinate the systems of education, as well as to redistribute resources in order to compensate for local and regional disparities. Linked to its redistributive role, the MEC also has a supplementary role to act in areas and at levels where the states and municipalities are unable to do so or do not have the resources to satisfy the population's educational needs.

Under the present administration, the MEC is contemplating three important actions. The first is to reorganize the responsibilities for basic education among the federal, state and municipal governments in order to promote equity and to raise the level of investment in basic schooling. An important reform currently under consideration is a change in legislation in order to oblige both municipalities and the states to apply 15% of their revenues to basic schooling and to co-operate in order to offer uniform coverage. This proposal also contemplates an increase in teachers salaries (which are, on average, very small) since at least half of that 15% should be directed towards the payment of teachers. The federal government is also studying the possibility of augmenting the budgets of the poorer states in order to assure a minimum investment of US$ 300 per pupil annually.

The second action addresses curriculum reform. The Ministry should have a new proposal ready for discussion before the end of the year and intends to use this opportunity to increase the participation and interest of teachers in school improvement.

The third action consists of establishing systems of performance evaluation for all levels of the school system to raise awareness of educational problems and to orient public policy.

Additionally, the Ministry is developing distance education.

Research and educational reform

Considering Brazilian educational problems from a broad perspective, we must examine what has been the role and impact of research on public policy.

Very few research projects have been directed at broad diagnosis. Without studies of this type it its very difficult to implement rational planning. Most of the general studies have been conducted by governmental agencies or by former governmental officials who have relied on their own experiences when defining structural problems in the system.

Part of the problem lies in the lack of reliable statistical data. The MEC is directly responsible for producing and publishing such data, but it faces severe deficiencies in equipment and trained personnel. Besides, the Ministry depends on data furnished by the states and municipalities whose resources in equipment and personnel are even poorer. A major project currently underway in the MEC is a complete modernization of its statistical sector.

Another aspect of the problem is that recent research has been heavily influenced by the political climate of opposition to the former authoritarian regime. In this climate, research was conceived as an instrument to denounce governmental policies and actions. Very few serious analyses of the deeper roots of the problems were produced. The primary aim was to defeat the government; not to influence educational policy.

Moreover, much of the research has been conducted by people directly involved with the school system and highly influenced by corporate demands. In view of these conditions,

research tended to be very limited in its scope and highly concentrated in school work, without indicating how the knowledge thus produced could be used to change the school system.

Three lines of research have had an important impact on educational policy. The first project, directed by Sérgio Costa Ribeiro, consisted of a series of analyses and reinterpretation of the available statistical data. These studies demonstrated that drop-out rates were over-estimated and that both access to school and failure rates were heavily under-estimated. As a result of these studies, new policies tended to de-emphasize school construction and turned to problems related to the quality of schooling, to the need for change in the existing curriculum and to the in-service training of teachers.

The second line of research was that conducted by the Fundação Carlos Chagas which developed a national evaluation of student performance. This research strengthened support for the conclusions of Costa Ribeiro and focused attention on the same issues of curriculum, teacher training and school equipment.

The third line of research, conducted by the Centre for Higher Education Research (NUPES), demonstrated the high cost and inefficiency of public higher education. This research contributed to the present policy of granting autonomy to universities and to changing the funding system of higher education towards an association between resources and performance, measured through evaluation. There has also been a series of action-research projects, conducted by local governments, directly oriented towards changing school organization. Most of it has targeted decreasing the failure rate and some have indeed contributed to the improvement of students' performance. Such initiatives have been restricted to the local level and have not produced an impact on the system as a whole. Despite this fact, they opened new perspectives and they are slowly building an awareness of the need and the possibility for better conditions.

Conclusion

There have been no basic national educational reforms in Brazil since 1968. The fragmentation of the system, which increased with the democratization of the country, makes it very difficult to promote an overall change. Reforms in the school system have been local initiatives. This is, to a certain extent, unavoidable in such a large and heterogeneous country. But there is no doubt that the legal framework and lack of clearly defined responsibilities constitute major obstacles to the necessary modernization of the school system.

At the national level, administrative and legal reforms are needed to free the system from its traditional framework and to reorganize the federal government to efficiently fulfil the functions of redistribution of resources and promotion of state and municipal initiatives. To attain these goals, it is necessary to build a reliable information system and to institutionalize a national system of evaluation at all levels of the education system. Additionally, the federal government should provide distance learning which could the reach the entire population and help overcome the deficiencies of the school system.

National reforms, in the last four years, have been following this path. But improvement of the system cannot be attained without increasing awareness of the problems and the motivation to improve—both of which must start at the local level.

CHILE

Agenda for educational research in Chile

At the beginning of the 1990s, the Economic Commission for Latin America (ECLA) offered its new proposal for development of Latin America and the Caribbean, called 'Productive Transformation with Equity'. Starting from the current economic model prevalent in the countries of the region, the ECLA's central idea for development is the deliberate and systematic incorporation and dissemination of technical progress. This becomes the cornerstone for the design of a productive transformation intended to improve the development level of the countries in the region within a framework of growing social equity and political democratization. Knowledge and education come to the forefront as crucial features of the policy priorities of this development process.

According to the proposal of the ECLA, education must address three great challenges during the present decade: *quality*, *relevance* and *social integration*. These three principles then become key regional goals in order to achieve higher rates of international competitiveness and to attain greater incorporation of those sectors of society which have not benefited from development. The ECLA's goals have had a profound impact on the general policy objectives of the modernization programmes for pre-school, primary and secondary education in Chile.

Central problems in the formal education system

Chile faces multiple problems regarding the improvement of the quality of education. It is frequently announced that Chile has made an important transition from educational goals *centred on coverage* to goals *centred on the quality of education*. Nevertheless, even the most optimistic reading of education statistics indicates that problems of coverage persist even though the political goal has changed. The most pressing problems are mentioned below.

- *Poor quality of educational delivery* exists in the less advantaged sectors of society. The lack of social equity in educational delivery is the most pressing problem for the Chilean government.
- Chile faces the transition to a *decentralized education system* which brings enormous challenges to a traditionally centralized sector.
- Chilean education suffers because of the *low relevance of the curriculum*, especially in secondary education.
- *Linkages between the levels of the education system, as well as linkages between the education system and society are weak*—a weakness which severely restricts the successful completion of formal education by many students.
- Higher education is moving towards a *market-orientated development model*, with little study of its actual and projected impacts on educational quality.

Non-formal education

While the ultimate aim of the NIER-UNESCO meeting may be the use of information to improve our formal education delivery systems, it is crucial to mention the parallel informal education systems which operate under the sponsorship of local governments, private agencies and grass-roots organizations. The complex, multi-sector policy dimensions of this informal system, which operates predominantly in the less advantaged sectors of society, have been

largely ignored, its aggregate social impact has not been studied, its quality has not been evaluated, and the design and implementation processes have not been systematized.

The most recent development in popular education, known as skills qualification, began in the early 1990s (a trend signalled at the 'Education for All' Conference in Jomtien, Thailand, 1990). On the one hand, it seeks the retrieval of knowledge and skills generated in popular education experiences (their different types with diverse modalities of transmission and acquisition) in order to introduce them into the wider education system. On the other hand, it evaluates the possibility of replicating these experiences as such outside the school system.

From research to national education policy:
two cases of successful linkages between research and decision-making

PRIMARY EDUCATION: 900 SCHOOLS PROGRAMME

The 900 Schools Programme is a national programme to improve the quality of education delivery in the 900 poorest primary schools in Chile, especially in the subjects of mathematics and language skills. The 900 schools with the worst learning achievements move into the programme for a pre-determined period of time, but once their level has improved, those schools move out of the programme to be replaced by other schools with poor performance. The programme is in its fourth year of operation.

This innovative school improvement programme has the following distinctive features. First, it is the result of systematic research carried out mainly in independent academic centres. Secondly, such research has been achieved by way of a 'think-tank' process which, despite its having been ideologically opposed to the Chilean military regime prior to 1990, could develop due to international co-operation. Third, the Programme was introduced to Chile by the Independent Academic Centres—giving rise to an innovative education programme during the first years of the new democratic regime. Fourth, the implementation of the 900 Schools Programme was organized and implemented by a number of professionals in the Ministry of Education who had the capacity to understand and interpret research information and apply it strategically to improve the quality of primary education among the poorest sectors of Chilean society.

In brief, the 900 Schools Programme continues to be a forum for discussion on the quality of Spanish and mathematics education among pupils in the poorest schools of the country. This new modality of public conversation has successfully drawn together agents from diverse levels and spheres, and thereby provides an example of breaking the closed-circuit policy loop which had characterized Chile's Ministry of Education until 1990. Examples of this co-operation have occurred at many levels:

- at the *policy level*: the Swedish government and the Chilean government; NGO researchers with policy designers;
- at the *ministerial level:* new 900 Schools authorities with career supervisors; supervisors among themselves;
- at the *school level:* young 900 Schools Programme teaching aids with schoolchildren; young teaching aids with career teachers; supervisors with teachers; teachers among themselves; and the teachers of the 900 Schools with their pupils.

Since its structural reform in 1965–66, secondary education has not been subjected to serious systematic change or incremental adjustment. This level was ignored for more than thirty years in terms of *aggiornamiento* or updating the features critical to its relevance: the curriculum in general, the curricular relation between study and practice in technical secondary education, teacher training, etc. In 1991, the Ministry of Education initiated the *Programa de Mejoramiento de la Equidad y Calidad de la Educación* (Programme for the Improvement of the Quality and Equity of Secondary Education) or MECE Programme. From September 1993 until November 1994, the MECE Programme team developed the 'Programme for the Modernization of Secondary Education, 1995–2000' based on the input from the contracted research. The MECE Programme seeks to increase the quality and equity of education through incremental change at the school level. With respect to the relation of research to decision-making, several aspects stand out.

- The demand for research originated in the Ministry of Education.
- NGOs and university-based researchers co-operated with professionals in the MECE Programme in the development of the projects.
- The development of the MECE Programme occasionally outran the process of building social consensus, especially among teachers and in public debate with advocates from distinct social groupings.
- The MECE Programme underestimated the political resistance to the programme among ministerial officers, policy designers and managers, who were crucial for its implementation.
- The tendency toward closed-circuit planning continued, even once the basic design of the programme was in place.

Major educational information sources

The Latin American Information and Documentation Network For Education (REDUC) is a co-operative system for gathering, processing and publishing studies in the area of education in Latin American and Caribbean countries. Located in Santiago, Chile, REDUC is co-ordinated by the *Centro de Investigación y Desarrollo de la Educación* (Centre for Investigation and Development of Education or CIDE). Its has twenty-eight associated Centres in nineteen countries in the Americas, including the United States and Canada. REDUC Centres, both public and private, belong to universities, research NGOs and ministries of education.

REDUC PRODUCTS

REDUC provides an extensive and high-quality databank that is directly available to users through the following products which are designed to facilitate the search for information. They include:

- *Resúmenes Analíticos en Educación (RAE)* [Analytical abstracts];
- *Index of Analytical Abstracts in Education in Latin America and the Caribbean:*
- *Resúmenes Analíticos Monotemáticos (RAM)* [Monothematic analytical abstracts];
- annotated bibliographies; and
- State-of-the-art studies (complete thematic revisions of matters relevant to education in the region). REDUC currently offers fifteen regional state-of-the-art studies.

REDUC SOFTWARE PRODUCTS

REDUC also offers a range of software products which enhances the user's ability to consult books and critical abstracts through Hypertext technology. Hyperbooks afford the user flexible access to policy-related texts, providing 'one touch' access to the topics in the text. HyperRAE consists of selected abstracts in Hypertext on particular topics (for example, Selected Abstracts: Education Policy 1994).

In an effort to contribute to the development of policy design and analysis professionals, REDUC has incorporated computer-assisted learning in policy analyst training courses. These interactive game simulation products incorporate the use of research results and participants endeavour to design and implement educational policies in a series of simulated scenarios. Interactive software for training policy-makers includes *Desafío* (Challenge) and *Una Nueva Oportunidad* (A new opportunity).

REDUC'S PRESENCE ON THE INTERNATIONAL SCENE

REDUC sponsors a biannual meeting of representatives from its associated centres to develop strategies for development and to target information needs for the region. The ninth biannual meeting is scheduled for November 1995.

At a global level, REDUC forms part of the Research Review and Advisory Group (RRAG) which analyses policies for educational research at the international level and operates through four channels: LARRAG (Latin America), centred in REDUC; NORRAG (Northern countries); SEARRAG (Southeast Asia); and ERNESA (African countries). CIDE/REDUC participates in the Southern Education Research Initiative (SERI), which includes other regional organizations like ERNWACA (Educational Research Network for West and Central Africa) and SAFER (South Asian Federation of Educational Research).

In October 1994, REDUC provided a training course for four education and information specialists from Tanzania and Botswana. This year ten regional specialists from Africa will receive the same training in information network building and management, and in the information and policy areas.

Obstacles to the use of information in educational decision-making

Weaknesses in the field of production and use of knowledge are caused by a number of interrelated factors. We shall now turn to those obstacles.

- International financial institutions propose indiscriminate global policies for developing countries.
- A 'closed-circuit technocratic policy loop' arises because programme and project solutions are offered for problems by the same agencies which make the loans.
- Expert thinking is overestimated when compared to the judgements, opinions and interests of the supposed beneficiaries of policies and of other professionals involved in the solutions.
- Experts are located in specialized units outside of the institutions responsible for the implementation of policies.
- Knowing that many of the educational problems which affect the poorest sectors of our countries cannot be resolved solely through educational reform, there exists no sustained practice for the formulation and implementation of integrated social

policies which consider the needs of students in the areas of health, nutrition, social work with the family, etc.

- Faculties of education in regional universities in Chile have little capacity for policy-orientated research on local and regional educational problems.
- The initial training of classroom teachers does not include engagement in research of teacher practice, the utilization of research results and other information pertinent to classroom practice, or the adaptation of classroom practice to the cultural background of students.

A proposal for the formation of local educational policy analysts
'Walking and talking REDUC'

REDUC offers specialized training for information brokers. Rather than simply move information, the fundamental task of these new professionals is to organize conversations between new possibilities (research) and actions (policy). Brokers operate as intermediaries between knowledge and concrete problems.

In an increasingly decentralized context, REDUC seeks to train policy analysts capable of promoting policies, programmes, projects and interventions to be implemented in highly complex situations characterized by scarcity of resources, social and political pressures, and distinct—even contradictory—visions. More specifically, the REDUC course seeks to train professionals who, through the use of the REDUC information base, can translate data, research results, reflection, policy option analysis and case studies into policy recommendations which are valid for a particular national context.

TRAINING OBJECTIVES

REDUC seeks to create professionals with social and technical competencies for action: information gathering and interpretation, organization of public discussions, negotiation among conflicting interests, and formulation of policies, programmes and projects. Graduates of the REDUC training seminar are able to:

- manage advising strategies so as to be recognized as legitimate expert sources in decision-making;
- understand the functioning of their own and other education systems, their histories and trends;
- understand research reports, search for relevant data, complete analyses and propose solutions based on the available evidence;
- integrate the knowledge derived from analysis into a vision of strategic development of the system;
- effectively communicate analysis in policy documents;
- design programmes and projects which are congruent with the policies' recommendations; and
- see the importance of the use of mathematical models and qualitative analysis in the understanding and solution of problems.

The curriculum is divided into four areas: information, policy, analysis and technical assistance.

The objectives of the information area are to provide abilities in the efficient use of educational information; to develop the ability to synthesize and integrate educational knowledge; and to develop competencies in the production of policy documents. This curriculum area consists of one course, *The interpretation and integration of knowledge and practice*.

The policy area aims to review the historical tendencies in the evolution of Latin-American education systems; to develop diagnoses of the current state of those systems; and analyze the options available to confront the principal problems. Special emphasis is placed on the review of successful national programmes. This curriculum area consists of the following courses: *Diagnosis and development of education* and *Policy, programmes and projects for Latin America*.

The aim of the analysis area is to provide technical tools in order to ground policy decisions and proposals. The techniques include consensus building as well as quantitative and formal analysis. This curriculum area consists of the following courses: *Heuristic techniques of policy analysis; Quantitative techniques of policy analysis;* and *Theory of analysis of public policy*.

The aim of the technical assistance area is to inform students about the results of research concerning the factors which impact the use of research in the public sphere. Students are also taught strategies of effective technical assistance in the design of programmes and projects which finalize the policy suggestions. This curriculum area consists of one course, *Foundations of the sociology of applied knowledge and strategies of consultancy*.

CHINA

Major education reforms have been under way in China since the early 1980s, along with economic restructuring for modernization. The 1985 Resolution by the central authority pointed to fundamental changes in the education system, but a turning point was made when China declared its official transition toward the 'socialist market system' as the central goal of national development. This transition has only begun, yet it has provided the greatest driving force to educational reform and has had massive impacts on the multi-dimensional reform process.

This summary is intended to highlight the major trends of education reform in response to the mandated transition to a socialist market-oriented system. Additionally, it will describe how educational research has been planned and implemented for informed decision-making in educational reforms.

Pressing educational issues and problems

Pressing educational problems in China persist despite the achievements made since the late 1970s when China shifted its focus to modernization. Among the problems are:

- under-investment in education in terms of public education expenditure in GNP;
- the conflict of the long-standing centralization in planning and administration with the need to decentralize for improved efficiency and effectiveness in education;

- significant portions of the school curriculum are irrelevant, out-of-date and slow to respond to the rapid socio-economic changes as well as advancing sciences and technologies;
- relatively inadequate qualifications of many school teachers and the low average educational level of the work force in general;
- the structural problem in higher education in terms of proportions of enrolment by levels and areas of study (academic programmes); and
- efficiency problems, especially at the college level.

Major reform trends

Among the high priority reforms are :

- diversification of the sponsorship of education to break the government's monopoly in running schools and colleges;
- organizational restructuring of the education system;
- further decentralization balanced with strengthened central control in macro-planning policy-making and supervision;
- further reforms in the areas of college-entrance examinations and job placement of graduates;
- reform of the school curriculum and exam-driven/college-oriented schooling for greater relevance and all-round student development;
- further changes in the educational investment system to diversify sources of funding; and
- strengthening moral education to cultivate healthy values and improve ethical standards while encouraging the preservation of traditional cultural values.

The close linkage between educational research and educational reform

Educational research in China is a well-planned and highly organized undertaking. It is aimed at serving government policy-makers with a decision-making tool; informing educational practitioners at the local and institutional levels for improved quality and effectiveness with new theories, content, methods and instruments; and strengthening foundations of education as a field of scientific inquiry through basic and applied research.

With guidelines developed by the State Education Commission and the National Steering Committee on Educational Research Planning, educational research has been increasingly oriented toward policy-making in educational reforms. The research community has provided valid and reliable data/information, theoretical frameworks, policy alternatives, operational instruments of evaluation and assessment, and applicable research findings to policy-makers at different levels. Over the past decade the government has increased funding for educational research to enable researchers to collaborate with policy-makers in joint studies on aspects of educational reforms. The government has assisted in identifying high priority areas of studies for researchers. It has promoted the dissemination of valuable research findings and information to the grass-roots level educational institutions. Additionally, the government has provided material, financial and spiritual incentives to researchers who have done relevant and quality studies to promote educational reforms in certain areas.

In regards to information sources for educational reform and research, China has developed a national network for the collection and dissemination of systematic information through both governmental and non-governmental institutions. The State Statistical Bureau,

the State Education Commission and its Department of Planning, the Education Management Information System and the Educational Information Centre at the National Institute of Educational Research, the Chinese Society of Educational Information, and education information centres/offices at many universities and local education departments have been supportive institutions for providing the information needed for research and decision-making in educational reforms. The hundreds of educational journals and newspapers are also important means of informing policy-makers, researchers and practitioners in education.

Among trends in linking research, information and decision-making are: an increasing policy-orientation; strengthening collaboration for joint projects; redefining high priorities in light of market-driven economic development and moral/ethical development; increasing involvement of school teachers as researchers and innovation experimenters; improving access to basic data and information with new mechanisms to disseminate information and research findings; stressing rigorous methods to establish education as a field of scientific study; and increasing the use of multi-media information technologies and software programmes.

China shares much in common with other UNESCO Member States in the educational problems they are confronted with and in the reforms they have to undertake to meet the new challenges for education in a new century. It is implied and strongly desired that regional and international co-operation in educational research and reform should be promoted and strengthened through efforts by UNESCO, the International Bureau of Education and all Member States.

EGYPT

An overview of the Egyptian education system

In Egypt, education is considered as a tool for modernization because it encourages interaction with modern technologies and participation in the information age, but it is also viewed as a means for social and professional promotion.

The pre-university education period is eleven school years, starting from the age of 6. Eight years of basic compulsory education is composed of a five year primary stage and a three year preparatory stage. Following basic education, there are three years of secondary education (general or technical). For advanced technical education, five years are required. Kindergarten is an independent period of two years for children between the ages of 4 and 6. Kindergarten aims to achieve comprehensive child development before primary school and prepare children for the basic education period.

Higher education is held in universities and specialized institutes. Applicants are those who acquired the General Secondary Certificate and those who distinguished themselves at the technical secondary level. This stage spans from two years in the intermediate technical institutes, to four or five years in university faculties and higher institutes.

Pressing educational issues and problems

Egypt suffers from the striking problem of high illiteracy. According to the latest census in Egypt (1986), 49.4% of the total population is illiterate. Illiteracy is higher among females than males (61.8% of females and 37.8% of males). Also, illiteracy is more predominate in rural areas than in urban ones, 67.5% and 32.5% respectively.

Moreover, the 12 October 1992 earthquake unveiled the dilapidated condition of educational buildings. A minimum of 3,500 new schools need to be constructed. The government and investors are exerting great efforts to build new schools. During the past year, the number of newly constructed and renovated schools reached 1,500 and the government aims to complete the required number by 1997.

In addition to school construction, there are plenty of problems within the framework of the general education system. Only 87% of Egyptian children are enrolled at the compulsory stage of education. The failure to enrol all children contributes to increasing illiteracy in Egypt.

Many pupils drop out of school due to either economic or educational reasons. This also raises the number of illiterates and contributes to the difficulty of rapidly eradicating illiteracy in the near future.

The secondary stage is divided into general and technical education. Technical education in Egypt accommodates about 70% of the graduates of the compulsory stage, and the remaining 30% receive general education. The curricula of the technical education are weak and incompatible with the tempo of the current technological advances, demands of the market and the actual needs of employers. As a result, technical education graduates are subjected to unemployment. Although the general secondary education is not exempt from the problem of unemployment, it is advantageous because it is open-ended and leads to higher and university education, thus providing increased chances for better jobs. This exhibits the inequality in the educational opportunities between these two kinds of secondary education.

There are continuous complaints about the low efficiency of teachers in all educational stages, but particularly in the secondary stage. This elucidates the weak preparation and training of teachers as well as the decline in the training standards in the faculties of education.

Many textbooks are out-dated and their poor design and layout constitute a problem to be studied.

The problem of financing education is common among all developing countries. The allocation of the highest proportion of the state budget to defence and national security, as well as economic crises, have their implications on education.

Educational research, decision-making and the educational process itself are weakly linked (if at all).

The most important features of current educational policy in Egypt

Mubarak's educational reforms illustrate the guidelines for a comprehensive reform programme of education in Egypt. They cover all aspects of the educational process: restoring and building new schools, developing the curricula, employing technology and modern methods in education, promoting recreational activities and fostering talents.

Through a democratic framework, the new educational policy in Egypt attempts to: remove the educational burden from the family, promote the principle of equal educational opportunity, link education and national security, and identifies education as an investment.

Dimensions of educational decision-making in Egypt

Given the basic attributes that officially characterize educational policy in Egypt, the process of educational decision-making has features which are pertinent to the overall national objectives, public opinion and human resource development. Therefore, decision-making in the realm of educational reform in Egypt is affected by more than one factor. Decision-making is influenced by four interlinked dimensions: political, technical, international and academic.

POLITICAL FACTORS

President Mubarak's interest in education is manifested in his official speeches in the People Assembly and the Shura Council, as well as in his statements and declarations to the press. Furthermore, the Minister of Education has his own point of view and approach which influence educational policies. The Minister of Education and specialists within the Ministry shoulder the responsibility of implementing all decisions taken.

TECHNICAL FACTORS

Applied research is the scope of this dimension as carried out by the educational research centres. The National Centre for Educational Research and Development (NCERD) has been founded as a specialized centre for undertaking educational research and studies. The following are the main tasks of the NCERD:

- carrying out required research and studies on the constituents of applied education and pedagogy;
- evaluating research findings to emphasize their feasibility for application and generalization;
- developing educational curricula and contents of school textbooks, as well as ameliorating instructional methods and tools;
- setting up a training strategy for teachers and instructors; and
- enhancing the Egyptian personality to be capable of encountering a future of comprehensive development and accomplishments, thus preparing a generation of scientists and scholars.

The organizational structure of the NCERD is comprised of a number of research branches: educational policies, improving curricula, educational planning, educational information, technical education and educational activities research. Every branch is composed of a number of departments to assist in achieving their objectives and tasks. The NCERD includes a number of administrations of which the most important is the General Administration of Documentation and Information and Decision-making Support. The following are the major departments which go under this administrations: data and statistics, computers, publishing, documentation and library and decision-making support.

In addition to the NCERD, two other centres of educational research which work directly under the auspices of the Minister of Education are the Centre for Curriculum and Instructional Materials Development (CCIMD) and the National Centre of Examination and Educational Evaluation (NCEEE). These centres were established outside the main framework of the Ministry to give them autonomy, status and improved budgets. Also, the two centres have their own organizational and administrative structures. The CCIMD is involved in improving and developing curricula and instructional materials as concerning design, and planning, writing and evaluating textbooks. The NCEEE is responsible for improving examinations, studying samples and developing the system of examinations.

Being under the patronage of the Minister, there is a sense of co-ordination among the educational research centres. All of them are concerned about the betterment and development of curricula and textbooks at all the educational stages as well as for the eradication of illiteracy. Furthermore, they carry out applied research dealing with educational problems and predicaments that emerge during their work. These centres also play an essential role in educational planning and evaluation.

ACADEMIC FACTORS

The academic dimension of educational reform is manifested in Egypt, like in other countries, in the findings of the educational research presented by the specialized departments and faculties targeting the development of educational thought. They aim to disseminate contemporary educational ideology as a contribution to the process of educational reform. Nevertheless, the most important task of universities is supplying educational research centres with competent researchers and professors.

In addition, the staff members of the faculties of education carry out research on the education system and its problems and present their recommendations. They also collaborate with educational research centres in research and supervision.

INTERNATIONAL FACTORS

The implications of this dimension are recognized in the modern and new thought provided by international organizations concerned with education, such as UNESCO, UNICEF and the World Bank. The technical and financial assistance of these organizations targets specific educational reform programmes, such as the World Bank's interest in basic education and UNICEF's work with the education of girls. In order to have access to the different results of such studies, a database is needed for collecting and storing findings.

The most important trends for educational research in Egypt

There is a desperate need for research in the following areas:

- educational costs and funding for monitoring expenditure;
- self-education;
- instructional methods for adults within the context of continuous education;
- looking for new styles and creative forms of education (compatible with the current conditions in Egypt) which go beyond the official and traditional forms to encompass non-systematic and autonomous patterns, as well as distance education;
- determining general and specific objectives of the curricula at all educational stages;
- implementing different instructional materials which reflect suitable information and content;
- researching methods that connect education with the environment by introducing environmental concepts and providing teacher training on relevant instructional methods;
- studying achievement and performance tests of different stages comparatively with other countries in order to assure the outcome of educational objectives; and
- system improvement through evaluation of all elements of the educational process, as well as its inputs and outputs which affect society.

The effectiveness and efficiency of the educational process is an essential field that needs to be studied. Since this is considered a relatively new area of study and there is a lack of specialists in it, it can be achieved through international assistance and collaboration in order to set up the required rules and procedures.

Sources of educational information

Egypt draws its statistical data from the Central Agency for Public Mobilization and Statistics. The Institute of National Planning also has a special division for education information and research. The Egyptian National Scientific and Technical Information Network, affiliated with the Academy for Scientific Research and Technology, has access to educational databases. The Information and Decision Support Centre is another important source of information. The Egyptian Universities Network—Informative Documentation Centre (IDC) is associated with the National Commission for Education, Science and Culture, and thus with UNESCO, ALECSO and ISESCO.

The above institutions administer basic information systems and provide access to both local and international databases. They seek to provide information using state-of-the-art management and decision-making techniques, timely information and the most relevant technologies. These systems strive to respond to the evolving needs of decision-makers at the highest levels of the Egyptian government.

Obstacles

Educational research in Egypt faces many obstacles, some of which are briefly described below.

Personnel obstacles

The main problem regarding educational information in Egypt is not a lack of information but its accumulation without proper application. Poorly qualified researchers do not properly utilize the available data and information. Individuals who carry out educational research need a special kind of training beyond a doctorate. Researchers should have training in research design, surveys and fieldwork. Additionally, they should be proficient in some foreign language and have a mastery of any other subject that will contribute in upgrading the quality of their research.

Research institutions

Research institutions have poor library services due to the absence of a regular supply of up-to-date references of good quality, particularly sources from abroad. Also, there is a need to collaborate among different educational research institutions; currently, every centre works individually.

Financial obstacles

It can not be denied that the lack of financial support is considered to be one of the main reasons leading to the problems noted above. The low salaries of educational researchers impels them to work abroad, which lowers the standards and experience level of researchers remaining in Egypt.

THE RELATIONSHIP BETWEEN DECISION-MAKING AND RESEARCH

In spite of increasing attempts to take educational research into consideration in the decision-making process, decisions always need political support. The participation of the beneficiaries of education in the decision-making process is now being encouraged. That was the case in the last national conference for the development of primary and preparatory education, and many of the decisions made at that conference are currently being implemented successfully.

GERMANY

The most pressing educational issues and problems

INTRODUCTORY REMARKS

In Germany, the state plays the leading role in the organization, administration and control of schools and other educational institutions. The general nature of this fundamental stipulation was confirmed by Article 7 of the Basic Law of 1949: 'The entire school system is subject to the supervision of the state.' This supervision includes not only the state schools, but also private institutions. State organization applies particularly to primary and secondary education. At the university level, the influence of the state is restricted to 'supervision'—within this framework, universities are allowed considerable autonomy and responsibility for their own concerns.

The state educational monopoly is limited in the field of pre-school education. Here, small local authority units and churches are favoured, as well as private individuals and institutions. Another limitation occurs in the field of vocational education for industry, commerce and agriculture. Here the state is content with outlining legislation and allows the non-governmental chambers of trade, commerce and agriculture extensive rights to regulate their forms of training.

The state monopoly in the education system and political and administrative federalism do not present us with a paradox because each *Länder* (federal state) of the Federal Republic of Germany possesses a centralized administrative structure. Federal responsibilities are limited to the outline of legislation powers for the development of vocational education and the university system and for collaboration in educational planning. As regards the latter two domains, even there the *Länder* remain responsible for legislation affecting any changes in normal standards and practices, whereas they enjoy the 'cultural sovereignty' (*Kulturhoheit*) for primary and general secondary schools as well as for the school-based sector of vocational education. Finally, the education and qualification of teachers falls into their responsibilities.

Accordingly, the state-supervised nature of the education system is to be seen in the jurisdiction of the *Länder*, which collaborate in various specialist bodies, such as the Standing Conference of Ministers of Education and Cultural Affairs and, in conjunction with the federal government, in the Federal and *Länder* Commission for Educational Planning and Promotion of Research. Co-operation and the awareness of an educated public which regards such co-operation as an essential component of education policy ensure that, even allowing for the important status of the *Länder* in matters of education, the traditional links of an education system which is unified in fundamental questions continue to be effective. This endeavour finds

expression in the decisions of the Standing Conference of Ministers of Education and Cultural Affairs.

As far as the most recent part of the history of education is concerned, particular mention must be made of agreements on the reorganization of Grammar Schools (*Gymnasium* Upper Stage), and of the reciprocal recognition of achievement standards in Comprehensive Schools. At present the Standing Conference of Ministers of Education and Cultural Affairs has been confronted again with the re-consideration of the structural and curricular components of Grammar Schools. The pressure for unanimity in this body frequently slows down the initiation of decisions and may sometimes even defer them; however, the overall readiness to come to agreements has definitely increased over the past years.

On 3 October 1990, Germany was legally reunified. Consequently, the re-established *Länder* have taken over the responsibility to organize institutionalized education within their territories, according to their West German counterparts, which has meant federalizing the domains of the education system which had existed under centralized governance in the previous German Democratic Republic period.

Issues and problems

The ten most pressing educational issues and problems are briefly described below. This list does not claim to be all inclusive nor should it obscure the fact that below the overall trend of educational policies at the macro-level, one must not overlook the initiatives and activities at the grass-roots level in a period of increasing demands for regional, local and school autonomy.

The financial context

Education policies throughout Germany are loaded with financial and budgetary problems which are part of the overall austerity policies. In this context one has to pay special attention to the enormous public debt caused by the need to reconstruct infrastructure in the East German *Länder*—including schools and other educational institutions. The crucial situation is mirrored by budgetary cuts with regard to school buildings and learning equipment and, in particular, by restrictions in the teacher-student ratios in schools and universities. There have been several measures to raise the work obligations of teachers in terms of weekly teaching hours.

Since an improvement is unlikely in the near future, educational policies have to concentrate on organizational and curricular strategies for improvements within the budgetary limits. Some *Länder*, North-Rhine Westphalia in particular, have commissioned private assessment agencies to scrutinize the economic efficiency of the education system. Since such measures have evoked objections among teachers' associations and students, the issue will remain on the reform agenda.

Federalism and German reunification

Reunification has confronted the traditional German federalism in educational matters with new tasks. In general, the legislative procedures in the East German *Länder* have passed their decisive stages but, nevertheless, the reciprocal recognition of standards has raised particular questions. In this context one must not forget that the number of *Länder* have increased from eleven to sixteen which has contributed to organizational and political complications for

debates in the Standing Conference of Ministers of Education and Cultural Affairs and the Federal and *Länder* Commission for Educational Planning and Promotion of Research.

Lower secondary education

Whereas primary education, has been stabilized at four years (except for the six-year course in Berlin, Bremen and Brandenburg), the debate on the structural and curricular development of lower secondary education has been revived and received new impulses from the education policies initiated in the East German *Länder*.

In the 1970s and 1980s, the debates in West Germany focused on the controversial issue 'tri-partite system (selective grammar and intermediate schools, non-selective secondary modern schools) versus comprehensivation'. By the end of the 1980s the impression was that this issue had calmed down and been replaced by the acceptance of the continuing predominance of the tri-partite system with a minority of comprehensive schools in some of the *Länder*. The re-established *Länder* of East Germany have adopted this general rule, with the following deviation: in three of the East German *Länder* the tri-partite system has been replaced by a bi-partite alternative consisting of grammar schools (*Gymnasien*) and non-academic secondary schools. This alternative is worth being emphasized because it has raised analogous debates in West Germany. While development of lower secondary education does not belong to the 'most' pressing education issues for the time being, it has remained on the agenda nevertheless.

Upper secondary general education

In the beginning of the 1970s the stage of upper secondary general education (*Gymnasium* Upper Stage) experienced essential changes. From a basically 'elitist' school with relatively strict selectivity it became a school for students from all strata of the population. Educational policy responded to that social change and to the parallel request for curricular re-considerations through a large-scale reform. Instead of the traditional system of teaching, in which the subjects were taught in self-contained class-groups, a course-system was established with 'basic courses' and specialized 'achievement courses'. This reform was connected with a remarkable reduction of the core curriculum in favour of optional specialization which gives the students a great amount of choice. The regulations of the school-leaving examination (*Abitur*) were adjusted respectively.

The openness of the *Gymnasium* Upper Stage has been increasingly criticized by the public, in particular, universities and the employers' associations. The Standing Conference of Ministers of Education and Cultural Affairs has been stimulated to re-stabilize the core curriculum with German language and literature, mathematics and one foreign language as compulsory subjects. This re-consideration of the *Gymnasium* Upper Stage has reached a crucial stage at present, and the Standing Conference of Ministers of Education and Cultural Affairs will come to a new agreement by the beginning of 1996.

The relevance of the *Gymnasium* Upper Stage issue with its complicated problems has to be seen in the framework of an education system where the school-leaving certificate (*Abitur*) of the Grammar School includes the constitutionally protected right for all certificate holders to gain access to university studies.

Vocational education

Until recently it seemed that the entire vocational education sector had not only consolidated structures and standards, but also a renowned international reputation. Vocational education is based upon the coexistence of full-time vocational and technical schools on the one hand and the 'dual system' on the other, according to which apprentice-training on the job is supplemented by part-time attendance at school. The stability of the dual system is dependent on employers' readiness to offer training places for adolescents without claiming immediate profit in terms of workforce. In periods of economic stability this system operates in accordance with the principle that the training of apprentices does not serve the firm directly, but rather the whole labour market. However, in the current times of scarcity and unemployment, the system suffers from disturbances, insofar as firms are less willing (or unwilling) to offer training places. Therefore, this issue can be regarded as a 'most pressing' one indeed.

On the other hand there has been tremendous progress in the up-grading of vocational education. Nowadays there are a variety of opportunities for adolescents with completed vocational training and some years of professional experience to get access to higher technical schools (*Fachhochschulen*) and even to universities. Moreover, the Federal Ministry of Education, Science, Research and Technology has repeatedly expressed its intention to promote 'legal equivalence' between the general and vocational lines of education as prerequisites for studies in the area of higher education.

Core curriculum

As the current debates on the curriculum of the *Gymnasium* Upper Stage indicates, the further development of the core curriculum is considered as an important problem. German secondary schools have always emphasized the idea of a general (liberal) education consisting of mathematics, natural and social sciences (with special regard to history), foreign languages, religious knowledge, fine arts, music and physical education. Whereas this core has remained untouched at the lower secondary level, the controversy regarding the *Gymnasium* Upper Secondary Level has remained on the agenda.

In particular, the contents of individual subjects must be re-examined. There are debates on how to place new technologies and requirements in the curriculum without increasing the number of subjects. The new requirements comprise, for instance, ecology, computer technology (at various levels), psychology and family planning.

School autonomy and assessment

The recent years have been characterized by a steady increase towards school autonomy. This is a complicated step, insofar as it consists of serious problems with regard to the holders of autonomy as well as to its extent (decision-making or only advisory functions). School autonomy is related to structural and curricular fields. The current trend consists of extending autonomy to individual schools as well as to local regional parliaments and parents' bodies. This whole problem has to be seen in its dependence of budgetary and staff regulations. Moreover, it entails the requirement of providing training and re-training for teachers.

On the other hand, school autonomy is tightly connected with assessment and evaluation. Germany belongs to the countries whose education systems are rather hesitant in recognizing the importance of this requirement and therefore, in adopting standardized testing.

However, as current debates demonstrate, this issue is likely to become increasingly important in the near future.

Higher education institutions

Higher education institutions, universities in particular, are going through a profound crisis. It is rooted in the enormous increase of students for the last thirty years which has transformed the former elitist institutions into mass institutions. Germany's remarkable extension programme—along with a number of new universities—has not kept pace with this general trend. The current debates focus on capacity as well as on curricular problems. These debates are overshadowed by the unsolved problem of how to avoid overly long study times.

Multi-cultural education

In this context the variegated problems in the field of multi-cultural education should be only mentioned, but not further discussed. While German educational policies on multi-cultural education have certainly reached remarkable achievements, the challenge continues. In particular, one has to take into account that students of non-German descent concentrate in big cities where there are schools and classrooms with vast numbers of non-German students from various ethnic groups.

Value education

This last issue must not be overlooked since it can be appraised as the most pressing one. However, it does not need to be discussed further in this context, all the more so as the German case is embedded in global challenges. German schools are involved in this trend with regard to their essential task, namely to develop knowledge and cognitive abilities as well as emotional and social attitudes while preparing young people to live in the uncertain world of today and tomorrow.

Linkages between educational research, reform and decision-making

THE ROLE OF EDUCATIONAL RESEARCH IN PLANNING AND IMPLEMENTING EDUCATIONAL REFORM

There are differences in the research orientations of universities and non-university institutions. The majority of educational researchers in Germany are based at universities and the scholars working there concentrate disproportionately on questions of theory and history. Projects dealing with the structural aspects of education are dealt with mostly outside the universities. Projects addressing vocational education and adult education are also rarely addressed at the universities. The state institutions predominate in research into vocational education.

University professors are in principle free to determine the objectives of their research. The staff at institutions for scientific and basic educational research not located at universities are also independent in planning their research. Their work, like that of the university professors, is subject to evaluation that is internal to each specialist field. Evaluation is carried out by the self-governing organizations of science such as the German Research Foundation, the Science Council and the scientific advisory boards of the Max Planck Institutes.

Therefore, the Federal and State governments only determine the objectives of educational research that is conducted by the institutions under their direct control—the so-

called 'state institutes'. There they decide on resource allocation and establish the priorities for non-university organizations for educational R&D.

The Federal Ministry of Education, Science, Research and Technology has set out its current objectives in a performance plan that lists the following items:

- New Federal States;
- international co-operation;
- equivalents of general and vocational education;
- cultural education;
- skill information and staff development policies;
- encouragement of the specially gifted;
- environmental education;
- health education;
- violence and extremism; and
- distance education and correspondence courses.

There is also an educational pilot study programme, which is designed to yield insights for decision-making about the further development of education. The fields to be supported include: vocational education, higher education, new information and communications technology in education, incorporation of questions of the environment in education, education in the arts and culture, girls and women in education, and differentiated support for special groups.

Problems and prospects

Educational R&D in Germany is segmented as a consequence of the functional division of labour among the various institutions for educational research both within and outside the universities. In co-ordinating the planning of R&D, account must be taken of the institutional and legal conditions relevant to educational research. At universities and at educational research institutions outside of universities, the self-governing organizations are responsible for directing and evaluating educational research; the government's immediate competencies are limited to the state institutes.

Because of the segmented nature of the field and the inadequate co-ordination of research work carried out at universities, projects aimed at improving education tend to be considered as minor studies initiated by individual researchers. This situation raises a number of questions about quality, efficiency and the effectiveness of educational R&D in contributing to the knowledge base for improved practice. For this reason, attention must be paid to the process of establishing priorities at universities and self-governing research institutes, and increasing co-operation between the various institutions of educational research. However, problem identification and the setting of priorities for research should be done within the framework of science and with reference to the needs and prospects of the various specialist fields.

The individual sub-disciplines of educational research differ with regard to the state of their research and their research priorities. Therefore they require subject-specific development with regard to content and methodology. The institutional subject-specific differentiation of educational research, however, has also led to a fragmentation of research perspectives and the neglect of research on higher level educational questions that can only be resolved by the integration of information available in the individual fields of knowledge. Aspects of the performance and quality of the education system can serve as the basis for the integration and

synthesis of research findings in the various subject areas. Improvements could imply the following measures:

- establishing a permanent interstate special information and documentation system for education as infrastructure for educational research;
- promoting the formation of subject research priorities at universities;
- improving the collaboration between universities and non-university institutions for educational research;
- regular assessments of the state of research and of the research perspectives in educational research; and
- the further development and expansion of existing dissemination systems and increased support for cross-sectional and longitudinal studies.

Educational information sources available within Germany

Types and subjects of information

Information about the methods used in educational research is available, above all, from the Social Sciences Research Information System. Two-thirds of the registered projects may be defined as descriptive and qualitative studies of various kinds. The remaining, mostly quantitative studies, typically employ simple surveys involving small samples. Cross-sectional studies which allow inferences to be made to a defined population, along with longitudinal studies, play a subordinate role with less than 10% of the projects. Compared with the 1970s and early 1980s, observational studies and tests are used infrequently. The lack of longitudinal studies is a weak point in German research.

Beside the Social Sciences Research Information System, a 'Special Information System of Education' (*Fachinformationssystem Bildung*) has been initiated by the Federal and State Commission for Educational Planning and Promotion of Research. For the time being it is conducted as a pilot project, located at the German Institute for International Educational Research in Frankfurt am Main. The outcome of this pilot project is likely to lay the foundation for making this new system a permanent agency within the framework of the aforementioned institute.

Moreover, a special Information and Documentation Unit has been established within the framework of the German Institute for International Educational Research. Whereas the Special Information System of Education is required to collect expertise on the overall development of the education system, the Information and Documentation Unit has focused its activities on selected topics, such as educational decision-making in Germany and the European Union; trends in educational policies in Central and Eastern Europe; and multicultural education.

Types of users

The Special Information System of Education and the Information and Documentation Unit are aimed at researchers and individuals in educational politics and administration. For this reason, the Federal and State Commission for Educational Planning and Promotion of Research has organized a special committee which fulfils supervisory functions related to both units in Frankfurt am Main.

The Special Information System of Education has developed a network in co-operation with the documentation and information centres which exist at state institutes for educational research and school development as well as with some special university institutes.

Finally, the long-term planning of the Frankfurt units concentrates on developing access to information services and networks outside the country. In particular, co-operation has been started with the European Union's EURYDICE network for educational policies, the EUDISED network for educational research installed by the Council of Europe and, with the American network ERIC.

Obstacles preventing a greater use of educational research findings for reform and decision-making

The main obstacles have been mentioned in the preceding sections. They are mainly rooted in the fact that information and documentation have been given unsatisfactory attention until only recently. Moreover, this whole problem has to be related to the interrelationship between educational decision-making and educational research.

Whereas in the 1970s there was great optimism in bridging the gap, the 1980s have been characterized by regression, connected with a certain distrust regarding the contribution of educational research to educational reform. The need for austerity policies, Europeanization and further internationalization of educational reform are likely to result in a new impulse for co-operative tasks and projects.

INDONESIA

The rapid expansion of the Indonesian economy started in the middle of 1980s when the government began to manage economic reforms through deregulation of the economy. This encouraged export oriented private industries and business to develop and thereby increase their significant share of economic growth. Indonesia's economic transformation has led to diversified employment opportunities in non-agricultural sectors—most notably in sectors that require an educated and qualified labour force with industrial skills and expertise.

As industrialization of the Indonesian economy continues, it will demand increasing numbers of qualified human resources who have mastered industrial, social and intellectual skills and values. In view of industrializing the Indonesian economy, the government has decided to oversee a number of educational reforms. These reforms aim to make the education system very well matched with the needs of development. The education system should be able to produce skilled graduates qualified for employment in Indonesia's modern economy.

The Indonesian development plan bases its programmes on the 'tripod' of development—equity, economic growth and national stability. Education appears to be the most important factor in achieving equity and progress for other aspects of life. The economy, on the other hand, plays an important role as the main motor of development. The economy and human resource development (HRD) function as the essential priorities in the twenty-first century. The development of these two areas in a mutually enforcing, interwoven manner supports the development of other sectors for the improvement of human life.

HRD, through the provision of equal learning opportunities, has experienced rapid progress since Indonesia's independence. In 1930, less than 6% of the population was literate. This percentage had increased to 20% in 1951 and 81% in 1985. The 1990 population census indicates that 84.1% of the population above the age of 10 is literate. This shows the success of development in the education sector, and particularly in primary education. Primary school enrolment started to expand in the twenty-five years following independence, and gained momentum during the first Long-term Development Plan era (1969–1994). Increasing numbers of school-age children and youth are going to school or attending out-of-school education programmes. The educational statistics show that the number of students at every level of the school system has grown extremely fast within the last twenty-five years. The number of primary school students has more than doubled, the junior secondary level has increased over four times, and the senior secondary level approximately eight times. This educational expansion will gradually change the structure of the Indonesian labour force. Another successful experience of educational expansion is the creation of a well-balanced distribution of learning opportunities at primary schools. This effort has been underway since 1973 when the government began to build new primary schools through the Presidential Instruction Programme. This achievement has enabled the government to make basic primary education compulsory since 1984.

Today, the basic compulsory education programme has yielded large numbers of primary graduates. The number of primary level drop-outs remains high, and they eventually will be counted among the unemployed. Sadly, the same is true for primary graduates since they do not have enough skills to do productive work, particularly in the industrial sector of the economy.

Indonesia needs to enhance the skills and productivity of basic education graduates to become productive industrial workers. For this reason, compulsory basic education is to become nine years, adding three years of schooling for those between 12 and 15 years of age. The curriculum of the junior secondary school provides skills training: a necessity for students who are not able to pursue senior secondary education.

Within the framework of HRD, educational priorities are set forth on the basis of policy recommendations as the results of R&D conducted or co-ordinated by the Office of Educational and Cultural Research and Development (*Balitbang*).

Considering the challenges facing the education system, the Ministry of Education and Culture (MOEC) has decided to maintain the four major themes of educational development that had been emphasized in the previous development period. The themes are the improvement of: equality of educational opportunity; relevancy of education to the needs of development; educational quality and effectiveness; and efficiency in the management of education systems.

In view of HRD, it is appropriate to see whether all parts of the national education system can fulfil their basic functions in the upcoming industrial society. Education has three interdependent functions: elevating the intellectual life of the nation; providing skilled graduates and expertise for industry; and nurturing and developing mastery in various fields of science and technology. Each of the functions then becomes a major policy issue in need of addressing.

Education is the essential effort to elevate the intellectual life of the nation. This is in line with the Preamble of the 1945 Constitution, Article 31. The Article appears to a very strong basis for the government to launch the Nine-Year Universal Basic Education Programme. The universal programme means to provide all citizens the opportunity to obtain learning up to 15 years of age (six years in primary school and three years in junior secondary school). Universal education does not necessarily have to take place in school; it can also

occur through out-of-school education like vocational courses, internships, on-the-job training, Islamic learning groups and the like.

Education is to provide all levels of skills for workers required to work productively in industry and enterprises. Education plays several important roles in preparing graduates for employment. The roles identify at least three dimensions of education, in terms of path (formal and informal education), level of vocational skills (basic, intermediate and advanced), and level of education (vocational up to the professional level). Education seeks to preparing future employees through many different types of vocational education in schools, professional education (higher level), courses for specific skills, and on-the-job training. The contents of vocational educational programmes should be flexible in that the training should make some adjustment to the needs of certain professions which continuously change in a modern society.

Education as preparation for productive employment is currently among the highest priorities for the MOEC. Various educational reforms have taken place in Indonesian vocational and professional education in order to make them relevant to the world of work. Vocational and professional educational programmes have expanded to reach all levels and segments of society equally. Providing equal opportunity for access to vocational and professional education will allow students to acquire necessary skills and experiences, as well as improve the equality of income and welfare of the whole nation.

Education is a tool to prepare for the competitive mastery in science and technology needed by an industrial society. This means that all components of education programmes should emphasize improvement in the areas of science and technology. Education will become the major vehicle by which to promote Indonesia's competitiveness in producing goods and services. This orientation should create the potential to reach a certain level of educational excellence, in terms of its capacity to select students with special talents or extraordinary achievements, yet remains within the boundary of proletarian ideologies. This means that Indonesia should provide high quality education to all without regard to differences in sex, ethnicity, religion and social status.

The science and technology education programme targets different subjects at the various levels of schooling. At the primary level, it focuses on general basic comprehension and aims to implant and develop basic learning tools. It covers mastery in reading, arithmetic, problem solving and moral education for the industrial society (concentrating on ethics such as hard work, discipline, time management and self learning). The science and technology programme for secondary education aims for mastery of basic knowledge and the preliminary capacity of mastering science and technology. Science and technology for higher education focuses on the mastery of pure sciences and research and development of applied sciences.

In the coming high-technology era, the improvement of mastery in science and technology is a policy that improves the equal distribution of learning opportunities at all types and levels of education. Successful expansion of educational opportunities through the Nine-Year Universal Basic Education Programme will also support improving mastery in science and technology.

Indonesia does not need a large amount of macro-level policy research in order to recommend policy reform. Various educational reforms have already taken place and become the major policy agenda for the MOEC. The reforms are:

- completion of the Nine-Year Universal Basic Education Programme by 2008;
- improvement of educational quality of all types and levels of the school system;
- implementation of the 'Link and Match' programme at all types and levels of education, especially vocational education; and

- the improvement of mastery in science and technology at primary, secondary and higher education levels, supported by improved mastery in mathematics and pure sciences within the overall education system.

The government encourages institutions and individuals to carry out educational research and development, and helps to support the newly introduced and implemented educational reforms. The essential research and developmental agenda is briefly described below.

There is a need to develop efficient alternate delivery systems for junior secondary education to accelerate the successful expansion of the Nine-Year Universal Basic Education Programme. Other types of R&D activities should help improve the quality of the junior secondary schools, including curriculum development, textbook provision, effective teaching and learning processes, efficient school management, and educational quality control mechanisms.

There is a need to set a new standard of educational excellence, conduct comparative studies on education, debureaucratize educational management, and establish quality control and system of accountability. These are some of the major components of the policy and research dialogues to foster quality reform endeavours.

The government has attempted to develop and improve educational programmes conducive to the mastery of pure science and technology. Schools need support from R&D activities in the development of relevant school curricula and learning support systems. R&D activities also are required to build a healthy accountability system in a stakeholder-client relationship.

In order to encourage a successful relationship between school and industry, innovative ideas will play an important role, most notably in: establishing co-operation among educators (schools), industries and professional associations in running vocational (and professional) education; software development; professional testing and certification; and building and updating occupational classifications.

Educational reform will take place through incremental changes throughout the system. New ideas alone will not cause significant changes in educational practices unless they are internalized by the whole range of policy-makers, planners, managers, researchers and the community. Therefore, educational reform will succeed only to the extent that these actors change their ideas and values targeted by the planned reforms. Generating innovative ideas is only the first step of the educational reform process. These ideas must be accepted and implemented for reforms to be successful.

JAPAN

An overview of Japanese education

THE SCHOOL SYSTEM

The Japanese formal education system is divided into four stages, namely pre-primary, primary, secondary and higher or tertiary. Each stage corresponds to a different age range. Compulsory schooling lasts nine years, therefore all children are required to attend both an elementary school for six years and a lower secondary school for three years.

EDUCATIONAL ADMINISTRATION

Educational administration in Japan is the responsibility of different bodies at the national, prefectural and municipal levels. The central organ of educational administration at national level is the Ministry of Education, Science and Culture. Its responsibilities include the promotion and dissemination of educational, academic, scientific, cultural and sporting activities.

Each prefecture has a board of education with the primary responsibility for the administration and implementation of education, academic, science and culture within the prefectural boundaries. Similar to the prefectural level, municipalities also have boards of education. Apart from the boards of education, the governors also have certain fixed powers and responsibilities regarding educational administration.

MAIN EDUCATIONAL REFORMS AND ISSUES

The promotion of educational reform in line with social change and new developments in thinking is a vitally important policy matter in the sphere of educational and cultural administration. In recent years, Japan has adopted three basic principles: a shift to a system of lifelong learning; an emphasis on individuality; and responding to growing internationalization and the move toward an information-oriented society. Japan is currently implementing wide-ranging reform measures based on these principles.

Educational research in Japan

THE SYSTEM OF EDUCATIONAL RESEARCH

Educational research in Japan is carried out by a variety of organizations and individuals. The main educational research activities can be classified into those carried out by national, public and private research institutes, those carried out by academic institutions and organizations such as universities and professional associations, those that make use of Ministry of Education-designated schools, and those undertaken by educational practitioners in a school setting.

There is also a network of 283 educational research institutes, called the National Federation of Educational Research Institutes. The Federation organizes annual collaborative research meetings and symposia as well as publishing educational research reports.

THE CONTENT OF EDUCATIONAL RESEARCH

Many different kinds of long-term research themes are being studied in connection with future educational policy-making at the national level. In the case of the National Institute of Educational Research (NIER), they are classified into special research, policy-oriented research and commissioned research.

Also, in recent years there has been renewed interest in international collaborative research including many research projects on contemporary issues. International projects enable the educational achievements of one country to be seen from an objective perspective by comparing them with those of other countries. Since educational achievements of this kind can make a real contribution to the planning of educational policies, it is expected that international collaborative research projects will increase in future.

In addition to the above, there is a system of 'designated schools', denoting schools which have been specified by the Ministry of Education and boards of education as being suitable for research aimed at contributing to the improvement of existing education. There is a system of pilot schools which co-operate in the development of new curricula and new teaching methods designed to meet the varied demands on school education that have accompanied the rapid and radical changes in society in recent years.

Regarding links between educational research, educational reform and policy decisions, educational research in Japan constitutes an important resource for policy level decision-making in educational administration. In particular, in the course of debates in various committees in such organs as the Central Council for Education and the Curriculum Council, research resources are heavily drawn upon. For example, in the debates in the Curriculum Council many research findings were referred to and incorporated into the recommendations of the Council.

Main educational information sources

The main educational information sources in Japan can be divided into a number of categories depending on the form they take.

PUBLICATIONS

Educational information publications in Japan cover a wide range of topic. One can classify them into broad categories such as government publications and statistics; publications from national, prefectural or municipal educational research centres; bulletins and other reports from universities and professional associations; and publications from the private education industry.

An unusual characteristic of educational information in Japan is the length of time over which educational data has been accumulated. Large quantities of basic data covering such items as the number of schools, the number of staff and pupils and the like, have been brought together every year since 1873 in the *Ministry of Education Annual Report*. Hence, it is possible to study changes in each item over many years, making this data a very valuable resource for the study of educational policy.

At the present time, designated statistics are assembled on the basis of various kinds of surveys. By means of these surveys, a vast amount of information concerning schools and children can be assembled and arranged. Taking the whole period from elementary through higher education, nearly 400 different types of statistics (such as the number of schools, the number of teachers, the number of entrants at each stage of schooling, the numbers going to higher grades and into the workforce, levels of ability, physical condition, sporting ability and the like) are collected in all.

DATABASES

A recent phenomenon is the emergence of many different kinds of databases. The content of educational databases reflects the special characteristics of the institutions that possess them. For example, the database held by the National Institute of Special Education is closely linked to special education issues. There are also many databases held by universities and professional bodies which are available for use by researchers, scholars, students and individuals.

As a result of the development of information technologies, international contact and exchange between educational researchers and institutions is increasing. In recent years, a particular means of obtaining information from overseas has been through computer networks. While the use of computer networks (such as the Internet or e-mail) is predominantly at an individual level, many research centres and universities are linked to computer networks, and the exchange of information with foreign institutions in this way is steadily increasing.

Major obstacles to linkage between educational policy and research—future issues

The major obstacles hindering a close linkage between educational policy and research in Japan are as follows.

It has been pointed out that educational research in Japan is rather poor when grappling with real social problems. When urgent research issues arise as a result of changes in society, the capacity to provide an immediate response is, at times, very limited. There is a need to think about devising a system that will allow this kind of quick response and to help select research themes that anticipate the kind of issues that are likely to arise in future.

There is said to be no consensus among educational researchers, educational policy-makers and practitioners in schools regarding the nature of problems to be faced. Even where there is a linkage between educational research and educational policy, it is often the case that the needs of practitioners are not adequately reflected. Hence, there is a need to construct a system whereby the voices of practising teachers can be heard at the research and policy-making levels.

Accessing existing information is difficult. There is no systematically arranged information service in Japan comparable to the American system ERIC, which collects, classifies and facilitates the organized use of educational information. In order to create a common understanding linking educational research, educational policy-making and educational practice, there is a need to strengthen computer networks and to establish a network system covering the entire country. With future needs in mind, we must also develop a multi-media oriented educational information database. There is a further need to strengthen research networks linking Japan and other countries so that both Japanese and foreign researchers can be made aware of the present situations and problem issues in other countries.

In conclusion, it should be noted that the root of all the problems listed above is financial. Although Japan has a powerful economy, the financial base for educational research is far from adequate compared to that of the natural sciences, and it is difficult to secure top-class researchers. In order to improve this situation, it is necessary to conduct more research on matters that are highly appreciated in society, to raise perceptions concerning the importance of educational research and to create a system that will generate even better research results in future.

KENYA

Introduction

Western education was introduced to Kenya by Christian missionaries around the mid-nineteenth century. The development of education was a shared responsibility between religious organizations, the colonial government, communities, private entrepreneurs and non-governmental organizations. This participatory approach to the provision of education has characterized the mobilization and use of resources for education and training up to the present time.

After Kenya gained political independence from Britain in 1963, the racially segregated education system that had frustrated Africans' aspirations was replaced by a more open education system. The new philosophy guiding the provision of education was 'education for development'. According to this view, the education system should aim to produce properly socialized individuals who possess the necessary knowledge, skills, attitudes and values to facilitate their full participation in nation building.

Policy on education and training

Kenya's educational policies are founded on the universal principles of political equality; national unity; human dignity; freedom of religion and conscience; social justice; freedom from want, ignorance and disease; equal opportunities for all citizens regardless of race, religion, sex or colour; equitable distribution of the national income; and the promotion and preservation of the cultural heritage.

The legal framework for education in Kenya post-independence has been based on policy and statutory documents. The Kenyan government has been active in educational policy and reform since its inception from the 1963 Kenya African National Union manifesto by which the government committed itself to eventual provision of universal free primary education to the establishment of the fifth national university in 1995. Various reforms have addressed adult education, creating teaching unions, research in science and technology, administration of examinations and establishing national universities.

The structure of the education system

The structure of the education system in Kenya is referred to as 8–4–4, meaning eight years of primary school education, four years of the secondary school cycle and a minimum of four years of university education. Pre-school education is available for children age 3 to 6. While the government recognizes and encourages parents to enrol their children in this level of education, its provision and enrolment in it remains optional.

At the end of the primary school cycle (at approximately age 14), pupils sit for a national examination on the basis of which between 40–45% move on to secondary education. The majority terminate their formal education at this level and either join various skills training programmes or find whatever kind of employment that may be available. Growth in school enrolment, especially at the primary and pre-school levels, has increased markedly since the 1960s. At the primary school level in particular, the enrolment of girls relative to boys has improved greatly since the mid-1970s.

The secondary school cycle, which lasts for four years, culminates with a national examination. The very small proportion of students who perform well in this examination find their way into university education either locally or abroad. The growth in the number of

secondary schools and enrolment of students has grown very rapidly during the past thirty years.

As in other countries, university education constitutes the apex of the formal education system in Kenya. Between 1963 and 1984, there was only one public university, the University of Nairobi. Between 1985 and 1995, four more public universities were established. As a result, enrolment at the university level in these public institutions rose from about 8,400 students in 1984, to about 21,635 in 1988, and to just under 40,000 in both 1993 and 1994. Moreover, in 1994 the existing twelve private universities and colleges enrolled an additional 3,545 students.

The management of education

The management of formal education in Kenya is the responsibility of the Minister for Education operating through the Ministry of Education and its legal organs. The Education Act of 1968 invested considerable power in the Minister for Education and through him allows the Kenyan government full control of matters related to formal education. The Permanent Secretary is the administrative head of the Ministry and also the accounting officer. He is assisted by two Deputy Secretaries; one in charge of Administration and the other in charge of Planning and Development. The professional section of the Ministry is headed by the Director of Education.

Various semi-autonomous institutions established either by an act of parliament or statutory legislation provide special support services to the Ministry of Education. The Kenya Institute of Education (KIE) is responsible for curriculum development. The Kenya National Examinations Council (KNEC) is an establishment which is responsible for the development and administration of national examinations including certification. The Teachers Service Commission is responsible for the recruitment and employment of teachers, while the Jomo Kenyatta Foundation (JKF) and the Kenya Literature Bureau (KLB) publish textbooks and other educational materials to support curriculum implementation. The Kenya Educational Staff Institute (KESI) organizes in-service courses, seminars and workshops for educational leaders including heads of schools, inspectors and other field personnel. The Kenya Institute of Special Education (KISE) trains teachers and other personnel to handle education for the disabled. Since Kenya has several projects geared at the improvement of the education system, a project implementation unit has also been established.

Educational research in Kenya

The management of educational research

While some educational research is conducted by specific organs of the Ministry of Education, the bulk of research is undertaken at the university level. Several institutions within the Ministry of Education undertake research related to educational issues and problems.

The Planning Unit of the Ministry of Education collects educational statistics at the national, provincial, district and school levels. Much of the data gathered is on pupil and student enrolments by standard or form, gender and region; the number of teachers at each level of education by qualification, gender and region; the number of educational facilities in each level of education and amount of funds allocated for each tier of education in terms of both recurrent and development expenditure.

The Kenya Institute of Education (KIE) carries out research related to curriculum and curriculum materials for pre-school, primary and secondary education. There is a research

section within the KIE which primarily focuses on curriculum evaluation studies and solicits professional support from outside experts, particularly university scholars, to strengthen its research capacity when undertaking specific large-scale research projects.

The Kenya National Examinations Council concentrates on examination-related research—analyzing examination questions and results with a view to improving their diagnostic value regarding the quality of both primary and secondary education.

The Teachers Service Commission collects vital data on teachers for the primary and secondary education levels. It also keeps an up-to-date record of teachers pay scales including the level of approved allowances.

The National Council for Science and Technology co-ordinates (and occasionally funds) educational research linked to science and technology.

The Central Bureau of Statistics (CBS), which is part of the Ministry of Planning and National Development, gathers and processes data for all of the ministries, including the Ministry of Education. The CBS gathers data on diverse aspects of the education system as a whole.

University research institutions

At the university level, research on education is carried out by academic staff and post-graduate students in various teaching departments and specialized research institutions. Most of the departments which conduct research in education fall within the faculties of education in the public universities.

In September 1988, some university staff formed a professional research body known as the Educational Research Network in Kenya (ERNIKE) as an affiliate of the larger Educational Research Network in Eastern and Southern Africa (ERNESA). The main aims of this body were identical to those of ERNESA: to identify and execute research in education, disseminate the findings and to build educational research capacity in Kenya.

Research in other settings

There are a wide range of international organizations and non-governmental organizations (NGOs), both foreign and local, which conduct educational research by commissioning specific studies. Most of the research commissioned by these organizations focuses on evaluating the impact of the projects that these agencies sponsor. Examples of these organizations include UNICEF, UNESCO, USAID, the International Development Research Centre (IDRC), the German Foundation for International Development (DSE) and the World Bank.

Some of the local NGOs which undertake educational research include the National Christian Council of Kenya (NCCK), the Kenya Catholic Secretariat (KCS) and the Aga Khan Foundation. These institutions carry out educational research dealing with specific social problems such as urban poverty, unemployment among school-leavers, problems of street children and the role of education in the democratization process.

Examples of key educational reforms and the role of research

The role of educational research in educational reform is probably more meaningfully discussed in the framework of the types of research which have been usually conducted in Kenya. As we discuss the types of research conducted in Kenya, attention will be drawn to whether they have been studies arising out of government commissions, studies commissioned

by various agencies, individual consultancies, international collaborative research or national collaborative research.

GOVERNMENT COMMISSIONS

In post-independence Kenya, the first major educational research in this category was the Kenya Education Commission Report of 1964 (the Ominde Commission). Its primary mandate was to advise the newly independent government on the formulation and implementation of a national education policy. The Ominde Commission had far-reaching consequences for education: it led to the abolition of racially segregated schools, massive growth in educational institutions and enrolments at all levels, and an expanded programme of teacher training.

The recommendations of the Ominde Commission were implemented through the First National Development Plan of 1964–70. During this period, there was rapid and massive expansion in education at all levels.

In 1971, a UNDP funded ILO Mission was invited by the government of Kenya to look into growing unemployment in the country. The relationship between formal education and unemployment was examined by the Mission through discussions with citizens. The ILO Mission recommended the greater vocationalization of the primary and secondary school curricula, the abolition of the Certificate of Primary Education (CPE), and the introduction of admission quota system to compensate hitherto disadvantaged social groups. The ILO report was made public in early 1972 and soon thereafter the government set up an Advisory Commission on a Study of Curriculum Development.

The subsequent Development Plan for 1974–78 echoed the recommendations of both the ILO report and those of the Advisory Commission on Curriculum Development. The education system was expected to promote:

- the high level skills needed for Kenyanization and economic/industrial growth;
- the vocational/technical training for employment and self-employment;
- equality of educational opportunity for national integration and progress;
- attitudes favourable to development; and
- training in literacy and in such basic areas as health, nutrition and child care to promote rural development.

The 1981 Presidential Working Party on the Second University (the MacKay Commission) conducted extensive surveys among Kenyans on the structure of the entire education system. It recommended eight years of primary school, four years of secondary education and four years of minimum university education, or the 8–4–4 system. In early 1982, the Kenya government announced the adoption of the MacKay Commission's recommendation of the 8–4–4 system of education starting in 1985. Furthermore, the MacKay Commission Report endorsed all the previous recommendations in favour of greater vocationalization of the primary and secondary school curricula. The new 8–4–4 system of education in Kenya today has a strong vocational bias. The adoption of the 8–4–4 system of education on the basis of the MacKay Report is a good example of commissioned research guiding educational policy and practice.

In April 1988, the Presidential Working Party on Education and Manpower Training for the Next Decade and Beyond published its report. The main focus of the Working Party was to advise on policies and strategies that should govern the expansion of education and training taking quality and relevance into account, for effective management of the economy and the promotion of greater self-reliance, self-employment and proper management of time at work or leisure. The policy of cost-sharing in the financing of education and training between the government, parents, communities and other agencies was given renewed emphasis. The

policy guidelines and strategies of the Presidential Working Party continue to guide the provision of education and training in the country.

RESEARCH COMMISSIONED BY NON-GOVERNMENTAL AGENCIES

One of the earliest research projects commissioned by a non-governmental agency in post-independence Kenya was that by the National Christian Council of Kenya in 1966. As a result of this study a conference attended by government officials was held in Kericho, Kenya in 1966. The Kericho Conference stressed the need for linking formal education with rural development and was important in demonstrating the contribution educational research could make to understanding rural change.

Partly as a result of these findings, UNICEF (in co-operation with ERNIKE, the Child Welfare Society of Kenya and Women's Bureau of the Ministry of Culture and Social Services) examined the situation of the *girl child* in 1992. The recommendations of the research reports were incorporated into UNICEF's plan of action in Kenya.

In addition, a series of multi-sectoral studies were commissioned from 1990 to 1992 by UNICEF and the Ministry of Planning and National Development. These studies focused on seven Kenyan districts in which UNICEF has specific programmes. A survey of primary schools in terms of pupil enrolments, teaching staff by qualifications, the state of physical facilities, completion rates and performance in examinations was undertaken in each of the seven districts.

While it is not clear what impact these studies had on government policy, it is believed they influenced UNICEF's plan of action in reference to education in these districts.

RESEARCH BY INDIVIDUALS

Educational research by individuals has been conducted either in fulfilment of the requirements for a higher degree or as individual research and consultancies for given agencies. Research related to the acquisition of advanced certificates and degrees is done almost exclusively by university staff and students. This type of research has minimal impact on educational policy and action.

A few research works by individuals have had a positive impact on educational policy and practice. One early example of this type of research in Kenya is that by Somerset and Makau in which the two researchers investigated the relationship of examination content to relevance, efficiency and equity in the education system. The results of the ten year longitudinal study were incorporated into practice and into modifications of the research programme itself.

A second example of individual research which has impacted educational policy and action is that by Obura et al on gender stereotyping in textbooks. The study gave a detailed analysis of the portrayal of men and women in a number of key textbooks. This study was well received by curriculum specialists at the Kenya Institute of Education and several publishing firms accommodated many of the findings calling for the positive portrayal of women when developing new textbooks. In this sense, individual research works of the type mentioned in this section influence government policy and action gradually and indirectly.

INTERNATIONAL AND REGIONAL COLLABORATIVE RESEARCH

International or regional collaborative research undertakings have been few. Two major ones, both undertaken in the late 1980s, are examined here.

The first was a collaborative research project involving the Bureau of Educational Research (BER), Kenyatta University and the School of Education at McGill University in Canada on the theme 'Schooling, Cognition and Work'. It involved eight researchers from the BER and seven researchers from McGill University, with a co-ordinator from each institution. Funding was provided by the IDRC of Canada. The main focus of the study was on the outcomes of primary schooling in Kenya. In all, fifteen research reports were produced out of this collaboration.

The second collaborative project involved an examination of the educational policies and strategies of eighth anglophone Eastern and Southern African countries. The studies were commissioned by the World Bank's Education and Training Department and undertaken by African scholars in the respective countries. Kenya was represented among the eight African countries. The Director of the Technical Department, African Region, of the World Bank expressed the hope that the dissemination of the findings of the eight studies would enable African governments 'to design and implement national policies and programmes to adjust, revitalize and selectively expand the education and training systems which prepare Africa's human resources ...'.

Collaborative research within Kenya

Since 1989, there have been four national level research projects in Kenya which reflect new strategies in collaboration between university researchers, their counterparts in the government, educational policy-makers and donor agencies. These four national level research projects are the Education For All Programme; The Kenya Programme on the Rights of the Child; the research project on Wastage in Primary Schools in Kenya as part of the wider project on Strengthening Primary Education, involving the BER, the Ministry of Education and the British Overseas Development Administration; and the Japanese government, World Bank and Ministry of Education research projects Early Childhood Development Studies and Cost and Financing of Education Studies.

Breaking the barriers to educational research-policy linkages

In the Kenyan context, the first barrier to the relationship between educational research findings, policy and practice centres on traditional methods versus innovation. It is the nature of government technocrats, especially in new states such as Kenya, to stick closely to established modes of thought and practice. This outlook stands in sharp contrast to the worldview of academic researchers where experimentation with new ideas and action strategies is a virtue. Educational researchers need to persuade policy-makers that new ideas and lines of action are aimed at improvement beneficial to all.

A second problem has to do with the language of research documents. Academic researchers tend to use technical (academic) language which departs sharply from official language of government documents. Additionally, academic researchers often feel free to write critically about issues. In contrast, government policy-makers may be constrained by real or perceived sanctions from their superiors, and thus refrain from being overtly critical. They often resort to more 'diplomatic' language even while being critical. For academic researchers to influence policy-makers (and therefore policy decisions and practice), their research must be comprehensible and unthreatening to government policy-makers.

The third area in which educational research and policy experience tension centres on the perceived power base from which the academic researchers come. Expatriate, mainly white, researchers are usually viewed as being backed by powerful funding agencies and

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governments. In contrast, many local researchers tend to lack this kind of support and, even when funded by similar agencies as their expatriate colleagues, are seen to lack the institution's full support. The result is that policy-makers often regard more seriously the recommendations of the expatriate researchers than of 'national' researchers—despite the fact that the local researcher is better placed to understand the wider dimensions of the investigated issues and the recommendations advanced. The challenge falls on policy-makers to be confident about their national research specialists, and on local specialists to win such confidence through quality research reports.

Kenya has only a very small cadre of competent educational and social science researchers. There are occasions when policy-makers are interested in using the results of educational research to influence policy but are discouraged by the poor quality of what is available. Factors which have contributed to this relatively poor quality research include: poor training in research methodology in the universities; lack of relevant research technology; little available research literature; the transfer of experienced researchers to teaching and/or administrative positions; and the increasing commercialization of research in the country.

Experienced researchers, the government and funding agencies must train more researchers to provide a pool of competent national researchers. They also call for support in establishing research infrastructure such as journals, computers, libraries and networks.

Lastly, there is the problem related to the dissemination of research results. Frequently, quality research exists on problems that policy-makers would like to address. Unfortunately, they may not be aware that such studies exist. In Kenya, like other new states, the available research literature is poorly documented and disseminated. Research tends to be hoarded by individual researchers/scholars or placed in isolated and inefficient documentation centres. Networking through computer systems and the improved dissemination of results should improve this situation.

Future prospects for educational research-policy linkages

The training of a larger national pool of researchers can be done through a regional pooling of resources with some international support. A good example for Kenya is the current IDRC-funded Kenya, Uganda and Tanzania Educational Research Awards and ERNESA. Regional grouping can serve as the context for obtaining training experts and trainees for acquisition of educational research skills. A network such as ERNESA with its within-country affiliates is also suited to the provision and operation of research infrastructure for networking. Training should be extended to appropriate government personnel for them to be competent in and appreciative of the research enterprise.

Sensitization seminars on the critical role of research in societal improvement are needed. National and regional workshops and seminars which bring together researchers, policy-makers and implementors should be held on a regular basis. Funding agencies should consider supporting such workshops and seminars with some financial assistance from national or regional governments. The ultimate aim of these workshops and seminars would be to cultivate an appreciation of educational research and the place of research in social change and development.

Lastly, there is need for greater research funding and the provision of outlets for research results such as journals, monographs and books. These outlets specifically benefit researchers, but they should also be accessible by research-sensitized policy-makers. Promoting and sustaining research and the kind of infrastructure that goes with research needs steady national, regional and international support.

MALAYSIA

Background

Malaysia is entering a new phase of its industrial development. The emphasis of development is to move towards capital intensive and technologically sophisticated industries to provide the foundation for the attainment of the status of a newly industrialized nation. To meet this goal, skilled professionals must be prepared and mobilized through a sustained effort of education, training and retraining. More importantly, a continuous supply of data and information must be gathered, processed, organized and disseminated to help decision-makers plan and implement new development programmes based on science and technology. In the field of education, it is vital to ensure that the education system is not only provided with the quantitative data on input as well as output of manpower, but also to ascertain that the data and information on the qualitative aspects of human resources is made readily available.

In Malaysia, research and reform in education are guided by the nation's education policy and the national philosophy of education. These two premises relate to the objectives of the national development plan within the frameworks of the Outline Perspective Plan (1991–2000) and Vision 2020. However, generally educational research activities are conducted by various related divisions of the Education Ministry, universities, training organizations and individuals. While the Educational Planning and Research Division (EPRD) of the Ministry of Education conducts research that is mostly policy related (the findings are often used as information for formulating decisions at the macro-level), other related agencies and organizations conduct educational research pertaining to general issues in education for their own specific purposes. These organizations include the local universities and professional associations. Many other agencies are involved in conducting educational research in Malaysia, including international organizations, the World Bank, foreign universities, consulting firms and private sector organizations that are related to education.

Policy related research which influences educational decision-making has three major roles: to gather information and data on related educational issues and problems; to monitor programmes and policy implementation strategies; and to guide decision-making and policy formulation strategies. In government agencies and institutions, the role of educational research is vital and meaningful as it:

- provides input to policy-makers at the operational levels of decision-making;
- assists in programme implementation studies;
- provides valid, reliable and timely data and information to assist the decision-making process and to provide specific policy decisions and alternative options;
- assists the critical agencies in developing future planning strategies and forecasting strategies;
- develops critical indicators for programme implementation; and
- evaluates programmes and policies for accountability purposes.

Linking research, information and decision-making

Research is an important component in the planning and reforming of education in Malaysia. For example, in 1992 0.67% of the total Ministry of Education budget was allocated to conduct various educational research projects. In the context of the national education policy, macro-level research, evaluation and monitoring are important for providing basic data and information that can be used in planning programmes at all levels of education. The results and

findings from macro-level research have become essential in the process of planing and reforming the national education system.

The EPRD conducts policy-related research and evaluation for the Ministry of Education. This division is responsible for providing valid and reliable data and information for the planning of programmes and the reforming of many aspects of the national education policy. Hence, the majority of research results and evaluation activities are macro- and policy-oriented in nature.

In the past, research findings provided educational planners and policy-makers with information for the purpose of formulating informed policy decisions and options. The need for research will be increasingly felt in the near future. In the context of rapidly changing socio-economic conditions and the move toward globalization, it is imperative that the education system adapt itself to the challenges and reality of the changing socio-economic and political environments at the regional, national and global levels. Various efforts have been undertaken to upgrade the existing education system to meet the requirements of the changing conditions and demands, especially towards quality education for all. The education system is particularly challenged by the process of developing quality human resources at all levels of the school system. It is within this framework of nation building plans, premises and strategies that educational research is seen to play a critical role. Thus, research activities cut across important areas and domains within the education system and the national curriculum.

Challenges—major themes and issues

There are several major areas undergoing reform in Malaysia. They cut across several themes, dimensions and issues, some of which are described below.

Higher education toward creating a science, technology and information based society

Human resource development (HRD) is one of the critical strategies that has been emphasized toward achieving the objectives of the national development policy and Vision 2020. Industrial development and economic structural changes will have to be addressed skilfully within the context of the second Outline Perspective Plan (1991–2000). Accelerated industrialization demands improvement in the production of skilled manpower and specialists for research and development. Based on the analysis of data regarding the capacity of the local universities and private institutions to fulfil the demand for selected professional and technical jobs, it has been found that the nation will lack manpower in the fields of engineering and technology.

Initiatives and strategies for making Malaysia a centre of education excellence

Malaysia aims to be a centre of educational excellence in the region. This means that all programmes and inputs pertaining to educational development have to be studied, re-evaluated and restrategized from time to time. One of the strategies that has been adopted is the plan to corporatize the local universities so that they will be more flexible in their management systems and productively gear their development to meet the market-driven forces of an open economy. In this regard, Malaysia needs to restrategize its educational research and planning approaches such that it will develop more institutions for students to pursue university level education. Currently all universities are government owned or subsidized. The policies for enrolment, admission, field of studies, teaching staff, and all activities of the higher institutions are centrally controlled. Since almost 90% of all educational expenditure is borne by the

government, public education institutions are administratively tied to the financial rules and regulations of the government. Such a system, in essence, does not permit universities to freely manage their available resources and generate additional funds for rapid growth. In the attempt to resolve the problem of inefficiency, the government plans to corporatize the institutions of higher learning, beginning with the corporatization of the University of Malaya in Kuala Lumpur in 1996.

Distance education—projects, programmes, and activities

The government has found it necessary to develop alternative means and strategies to deliver education to a wider population. One approach to increase educational opportunity is through distance education, as it can deliver learning and teaching programmes in a much wider and diversified manner. Moreover, with the use of technology (such as e-mail and, in the future, the 'virtual university and lecture room' approach), more people will be able to enhance their education. Hence, research and planning in terms of locations, curriculum, syllabi and facilities will have to be seriously addressed.

Non-formal education—projects, programmes and activities

HRD will assume a greater and more significant role as Malaysia prepares to enter the next millennium. This means that the focus of HRD will also have to address the approach of non-formal education. Although programmes and activities of non-formal education are concurrently organized by various agencies under different ministries and organizations, the general absence of national strategic policy research in this domain is a critical issue.

Expansion of private educational institutions

The rapid expansion of private education has created various problems such as matters pertaining to the physical conditions of the premises and facilities, fees, qualifications of staff, accreditation and general student welfare. Although there are about 200 private colleges and institutions that provide professional education in the private sector, most of them provide low-cost preparatory programmes in generally non-technology oriented programmes. Some of the diploma and degrees are conferred by overseas institutions through twinning arrangements. The cost of offering courses that are technically oriented and the high fees that have to be charged to students have made it difficult for many private institutions to offer technology-oriented programmes. While it is recognized that such institutions have their own educational and financial objectives, the issues of course contents, fees, structure, facilities and pedagogy must be continually studied and researched. Accurate and informative data must be gathered in order to ensure that private sector education will complement that of the public sector.

Democratization of education and its impact on narrowing gaps and inequalities

Democratization of education is a concept that has to be realized in the process of providing quality education for all. The participation rate at the primary level is targeted to be 100% by the year 2000. Universal education will be extended to up to eleven years of schooling and the illiteracy rate will have to be reduced. These educational reforms not only require new policy initiatives but, more importantly, accurate information and data from research and studies.

TEACHER RENEWAL PROGRAMMES

The Ministry of Education has embarked on a massive renewal programme to achieve the goal of upgrading teachers' qualifications. This approach includes the twinning of programmes for in-service training for teachers to pursue their degrees at the undergraduate and graduate levels in local institutions and overseas. Data and information in terms of staff development must be gathered and studies have to be conducted in many related areas of concern.

Development of resourceful, flexible and multi-skilled human resources

Malaysia intends to realize its potential as a dynamic and progressive country with strong scientific and technological capabilities. However, the success of this effort lies in its ability to forge strong links between education, science and technology on the one hand, and the social and economic structures on the other. In essence, it requires a critical mass of human resources that is equipped with the capability to adapt quickly to unpredictable, sometimes volatile and constantly changing market conditions. The key to both productivity and competitiveness lies in the capability of the workforce to mobilize their knowledge of science and technology, and the capacity of the management to effectively mobilize their educated and trained workforce to maximum advantage. In this context the process of training and retraining is deemed critical and it calls for a continuous supply of information and data relevant to the development and mobilization of human resources.

Concluding remarks

As Malaysia moves toward establishing itself as an industrialized nation and as a centre of educational excellence, information on manpower and human resource is greatly needed from time to time. Given that the national philosophy of education stresses the overall development of the individual (intellectual, spiritual, physical and emotional), interdisciplinary information and data on all aspects of the education system must be gathered. The availability of new information technology, such as the Internet and multimedia information highways, has enabled researchers in Malaysia to work and interact with fellow researchers not only within the country but also from around the world. Through ERIC, researchers from all sectors of research organizations and institutions are able to access data and information on many topics of interest. Local institutions and universities also have microfiche collections on various topics that are accessible from outside Malaysia. It is anticipated that by the year 2000 Malaysia will successfully cover the first phase of its mission in its attempts to establish itself as a strong centre of educational excellence based on science and technology. In this regard, the process of linking research, information and decision-making is critically significant.

NETHERLANDS

Context of the education system

Although Dutch educational policy is generally developed at the national level (for example, determining educational goals), the freedom to establish and organize schools, and to determine the religious or other convictions on which they are based, is laid down in the constitution. Funding is provided by the State. This freedom is a very influential characteristic of the Dutch school system and is the reason for the existence of a wide variety of schools in the Netherlands: Catholic, Protestant, private non-denominational and public authority schools. On national level, these schools are organized into four Schools Councils—one for each of the categories of schools. These councils represent parents' organizations, teachers' unions, school board organizations, organizations for part-time non-formal education for young adults, and educational advisory centres. The Schools Councils serve as important external advisory bodies for the Minister of Education, Culture and Science.

The main political goals of education are equal educational opportunities, the improvement of educational quality, and the development of personal and civic responsibility. As it is not expected that budgets for education will increase, improving efficiency is considered crucial to be able to achieve these goals.

Important educational issues and reforms

In the 1980s and 1990s, several major reforms took place in Dutch education. The 1985 Primary Education Act integrated nursery education and primary schools, thus creating a new-style primary school. This allows pupils to follow an uninterrupted process of development for eight years, starting at the age of 4 and being compulsory from the age of 5. In 1993, three years of 'basic education', consisting of fifteen subjects, was implemented in secondary schools for all pupils between the ages of 12 and 14.

A steering group has prepared proposals for a new-style upper secondary school in which courses will be clustered in 'profiles' (science and technology, science and health, culture and society, economics and society), in which a clearly recognizable place should be given to higher order cognitive skills such as problem solving, research skills and information skills. The steering group refers to the school as a 'study house' in which most of the content of education is determined centrally, but where schools are free to determine the form and structure. This proposal has been received favourably, but has not yet been implemented.

Other sectors have already undergone major changes. Vocational education has been reformed such that all programmes are clustered in four sectors: technical, agricultural, economics and public services, and health. In each sector programmes are offered on different levels and of different lengths. In the mid-1990s a process started to merge vocational and adult education into regional training centres.

Many structural changes took place in higher education, often inspired by the need to cut educational budgets. For example, the length of university programmes was reduced to four years, while discipline research schools were established within which research assistants can work on their doctorate projects. To create conditions for increased institutional autonomy, curricular innovation and improvement, the 350 professional colleges were reduced through mergers to about 50 large multi-sectoral institutes.

In addition to the reforms of the educational sectors, other policy issues were being addressed as well.

- Educational Priority Policy aims to combat the educational disadvantages which have been found to exist in practice by focusing on pupils' socio-economic backgrounds and ethnic origins.
- Integrating disabled student into mainstream schools and classes received increasing interest. In 1985, the Special Education Interim Act was introduced to encourage transfers of pupils from special to ordinary schools, especially in primary education.
- Government, business and industrial circles developed the opinion that education had to follow the culture of other societal sectors and therefore had to become more 'entrepreneurial'. It was believed that this could only be realized by giving schools more autonomy.
- The Dutch government has pursued an active stimulation policy to introduce information technology into education in various ways.

Educational research in the Netherlands

RESOURCES FOR EDUCATIONAL RESEARCH

Traditionally, Dutch universities do have a substantial regular budget for research. On average, 40% of university staff time is spent on research. The universities are free to programme this research. In 1990 the estimated research budget was NLG 30 million.

Most educational contract research is financed by the Ministry of Education, Culture and Sciences (MECS). The National Institute for Educational Research (SVO) co-ordinates research in the sectors of primary and secondary education (in 1990, NLG 20 million; in 1995, NLG 15 million). Other contract research takes place in the sectors of adult education and secondary vocational education (NLG 3.4 million), policy oriented research on higher education (NLG 3 million), regular national assessments of educational achievement (NLG 2.8 million) and in other areas such as research on terms of employment of teaching staff (mostly in primary and secondary education).

Some development institutes are conducting projects which can be characterized as a combination of scientific research and development. The two most important ones in this area are the National Institute for Curriculum Development and the National Institute for Educational Measurement. In recent years other agencies have gained recognition as 'producers' of scientific knowledge and insight, such as the Education Inspectorate and the Scientific Advisory Council on Government Policy.

TYPES OF EDUCATIONAL RESEARCH PROJECTS

An understanding of educational research in the Netherlands can be obtained from a study which reviewed all educational research projects conducted in 1991 and 1992 in universities or as contract research. It classified educational research along two dimensions: according to its orientation or function and according to the type of knowledge which was generated.

The first dimension, the orientation or function of the research, distinguished three main types of research: to enhance educational science; to support educational policy; and to support educational practice. It was found that research on primary and secondary education had a stronger academic orientation than research in other educational sectors. Research on secondary and higher vocational education, adult education, industrial training and courses for the unemployed was more concerned with supporting educational policy. Research on university education had a more practical orientation. Educational research that was not

specifically concerned with a particular type of education was generally oriented towards the advancement of academic knowledge.

The second dimension classified educational research according to the type of knowledge it generated and distinguished four categories. The first, *fundamental research*, is directed at development and testing of theories. The researcher enjoys a great degree of academic freedom. A special type of fundamental research is strategic research focused on understanding educational problems. This type of research is fundamental in nature, but the research questions not only arise from the curiosity of the researcher but from problems in educational policy and/or practice. This type of research is not intended to be applied in the short-term, but in the long-term may result in knowledge applicable to educational policy-making or educational practice. *Diagnostic research* supports educational policy and/or practice. This kind of research can be characterized as making inventories, explorations, descriptions of status quo, etc. Being practice oriented, less attention is paid to underlying factors or processes of the phenomena under study.

Third, *development research* is conducted to scientifically develop a concrete product, for example validated curriculum materials, tests, organization models, policy measures, educational software, etc.

The final type is *evaluation research*. This kind of research studies the effects of policy measures or products (for example, concrete curriculum materials). On the basis of empirical conclusions adjustments to the policy or product can be proposed.

Other findings include:

- research that was not concerned with a specific type of education was often of a fundamental/strategic nature;
- research on secondary vocational education was often diagnostic;
- research on higher vocational education and industrial training had a comparatively strong orientation towards development; and
- research on primary and adult education was often concerned with evaluation.

Programming of contract research

The SVO is presently the major contractor of educational research in the Netherlands. It co-ordinates contract research for the sectors of primary and secondary education (budget of NLG 15 million in 1995). The leading principle in SVO's activities is that of a customer-contractor relationship with the nation's four Schools Councils (representing the educational practice) and the government as its main customers. The SVO achieves independence and objectivity in its research by drawing a clear line between interests and influence in decision-making in the choice of research projects, the conduct of research and the dissemination of research findings. Most policy and practice oriented educational research is carried out by five independent university based educational research institutes.

The strategic question to be addressed in educational research programming is: how can education fulfil its functions under constantly changing social, technological and cultural conditions? These conditions do not only affect the structure of the system, but also the teaching and learning processes at the micro-level. That is why the main issues to be addressed by contract research should be how research can help identify and remedy problems that emerge in the development of education as a reaction to the constantly changing demands placed on schools. Another major function of research should be to describe possible alternatives and to test their feasibility before far-reaching policy decisions are taken. Once an alternative has been chosen, empirical research data should be made available to show whether that option is likely to produce the desired results.

Research acquires greater significance if the findings can be interpreted from the perspective of developments in time, which refers to a need for longitudinal research. Furthermore, research gains additional value if its findings can be compared with the findings of similar research conducted elsewhere in the world, which implies that consideration should be given to an international comparative aspect.

Within this context research programming activities are at present directed toward the three following domains.

THE INFLUENCE OF SOCIETAL DEVELOPMENTS ON EDUCATION

This may involve description and analyses of the consequences for education of, for example, the ageing of the population, cultural change, cultural diversity or the unification of Europe. In practice it proves difficult to realize research in this domain.

THE QUALITY OF THE VARIOUS COMPONENTS OF THE EDUCATION SYSTEM

This involves research focusing on the rationality and the effectiveness of the education system as an organization at various levels (school, classroom and pupil level) and the interrelations between the various sectors within that organization. Such research may explore, for instance, the working of the individual components that make up the overall organization (such as subject matter, content, methodology, teacher and pupil). Topics in this context are: the efficiency and effectiveness of education; the role and functioning of the teacher; the implementation of new curricula; the transfer of norms and values; and teaching and learning processes.

EVALUATION OF INNOVATIONS AND DEVELOPMENTS IN EDUCATION

This involves the identification of developments in education that carry the promise of 'good practice'. One may also think here of the evaluation of formal, large-scale innovation processes, such as the introduction of 'basic education' (a common core curriculum for the lower secondary level), the Educational Priority Policy and increasing school autonomy.

From these domains, the SVO has developed a number of thematic programmes and a programme of longitudinal cohort studies to allow for diagnostic and evaluation research to support policy-making. Some examples of programmatic themes are:

- yield of education for 12–18 year olds;
- Dutch as second language;
- individual (behavioural and emotional) problems of pupils;
- fundamental and development research to improve didactical methods;
- the functioning of the teacher; and
- evaluation of Educational Priority Policy.

Cohort studies are set up for primary education, general secondary education and secondary vocational education, as well as among the target group of the educational priority policy in primary education. In each study, a sample of pupils in a certain grade (a 'cohort') are annually responding to a battery of examinations. In this way it is possible to study the development of school careers, background characteristics (also via questions to parents) and the qualities of pupils (intelligence, achievement and perceptions of the school).

Problems in the utilization of educational research for policy reform

In the early 1980s, the MECS concluded that although annual overviews were published of ongoing and completed research projects, there was little, if any, systematic insight into the function fulfilled by educational research in different phases of the policy-making process and in different sectors of policy. In 1986, the MECS commissioned a study focused on contract research, which resulted in the following findings.

- The absence of intensive contacts between researchers and policy-makers, especially in the first phase of the research process, severely reduces the usability of research results. Researchers say they profit most from informal contacts with officials who are well-informed about policy matters.
- The absence of intensive support in the execution of research projects may tempt researchers to give priority to interests other than those of the research contractor. Regular support enables adjustments during the execution of the project, resulting in greater relevance for policy-makers.
- The absence of clear ideas or agreements concerning the implementation of the research results often reduces their usability for policy-making. Little evidence was found of systematic attempts at planning the use of research information in the policy-making process.
- Improving this situation is rendered difficult by the lack of clear policies and the frequent staff changes among government officials.

The researchers noted that this situation could only be improved through systematic contacts between researchers and policy-makers in all phases of the research process. This is only possible if research projects are conceived as an integrated part of a planned policy development project.

Since then progress has been evident in the closer ties being forged between research and policy. An opportunity has been created to commission short-term research via the SVO. Policy evaluation has become an explicit task of all ministries, including the MECS. Also, policy-makers have become more receptive to outside views, including those of researchers. Networks of policy officials and researchers have developed.

Examples of utilization of research in policy development

NATIONAL EVALUATION OF THE EDUCATIONAL PRIORITY POLICY

This national evaluation is one of the thematic research programmes of SVO in which several research projects are commissioned annually. Results of this research and evaluation studies are used in the recommendations given in the regular reports of this project to the Ministry. For example, the 1994 progress report discusses and gives recommendations for policy development in areas such as achievements in primary education, the social position of allochtonous pupils in primary schools, educational priority policy in school and class, characteristics of effective schools and classrooms for disadvantaged pupils, school careers in secondary education, and early school leaving (drop-outs). The project concluded in its 1994 report that the results of this evaluation programme are indeed used in policy development and decision-making at the national, regional and local levels.

The Dutch government pursued in the 1980s and early 1990s an active policy to stimulate the use of new technologies (especially the computer) in education. The implementation of this stimulation policy has been evaluated in several studies. As the researchers in these studies developed good communication with both the civil servants responsible for developing policy proposals and those responsible for the implementation of the stimulation policies, one can conclude that the results of these research projects have been considered in every stage of the development and the implementation of this stimulation policy.

Educational information sources

Information provision is a necessary condition for the utilization of research results in practice. The main types of educational documentation are bibliographic documentation and project documentation. The Netherlands has two important bibliographic databases on education: ADION (Automated Documentation and Information System for Educational Literature in the Netherlands) and DION (Documentation and Information System for Educational Literature in the Netherlands). The ADION database of the MECS is comprised of information on educational policy but also includes documentation on educational research.

There are several other organizations that disseminate documentary information about education, such as: the Centre for Innovation in Vocational Education and Training, the National Information Centre on Teaching Materials, the libraries of colleges of higher vocational education and the Centre for Libraries. The Documentary Information Department of the Social Sciences Information and Documentation Centre documents research publications. The Social Research Methodology database is of an entirely different nature, comprising bibliographic information on methods and techniques used in social science research. This database is produced by the Erasmus University in Rotterdam and is accessible on-line through SURFNET. The Royal Library in the Hague fulfils a special role in the world of scientific information provision. Its task is to establish a coherent national structure for scientific documentary information provision and to improve the links between this structure and public and special libraries.

The SVO plays a central role in the documentation of educational research projects. As the Dutch national agency in Council of Europe's EUDISED network, it translates and supplies descriptions of ongoing and completed research projects in the Netherlands to the EUDISED database.

An important vehicle for dissemination is the journal *Didaktief*, published by the SVO, in which results of contract research projects are summarized for educational practitioners.

As of August 1996, SVO will stop functioning in its present form. The functions of programming and co-ordinating contract research will be taken over by other bodies, among them the Netherlands Organization for Scientific Research.

Conclusion

The use of research in educational policy-making remains a complex issue. Educational policy-making seldom consists of simple decisions or just a choice from among the alternatives emerging from research. Major changes in education generally require new legislation—a long process involving numerous advisory reports, debates and compromises. In some phases of this negotiation process research may play a role in the analysis of problems and/or in the development of alternative solutions. Research can only play a role in such processes when

certain conditions are fulfilled. It is not sufficient that governments recognize the possible contribution of educational research to policy-making. It is also important that it is understood that researching the influence of societal developments on education, investigating the quality of the various components of the education system and evaluating innovations and developments in education are complex and time consuming endeavours.

Governments often demand research results in a short period of time. It is important that they understand that short term results can only be provided when a body of knowledge exists in the domains mentioned above. Well informed educational policy-making needs a well supported educational research policy culture.

PHILIPPINES

Educational issues and concerns

ACCESS

Access is one of the major educational concerns being addressed in the Philippines. Originally, an elementary school in every *barangay* (the smallest political unit in the government) and a secondary school in every municipality was being established. After school mapping it was realized that it was unnecessary to put elementary schools in small *barangays* because one elementary school can serve two or three small *barangays*. The completion of the elementary schools in the *barangays* where they are needed will hopefully be realized in 1996.

EQUITY

Equity is another concern that is being addressed. Free and compulsory education at the elementary school level and free secondary education are provided by the government to school age children. National scholarships are offered to bright students and the 'study now and pay later' programme is a scheme to enable poor but deserving students to pursue a college education. A one to one ratio in the distribution of textbooks to students is targeted for 1996.

UPGRADING THE QUALITY OF EDUCATION

Upgrading the quality of education is a problem that is increasingly being given more consideration. Due to the many factors involved in the academic achievement of learners (particularly economic and social problems), this issue cannot easily be addressed. National assessment examinations conducted with all graduating pupils/students and close monitoring of school performance are some of the indicators being used to address this problem.

RELEVANCE

This is another crucial issue to make sure that schools offer learners what they really need to improve the quality of their lives. Refocusing education through curriculum revision and staff development is one way of addressing this issue.

Efficiency

Accountability, transparency and economy in the use of resources are being emphasized in the Department of Education, Culture and Sports (DECS). Very recently a 'war on waste' was launched in all schools to encourage economy in the use of resources.

Effectiveness

To ensure the effectiveness of basic education, a Master Plan has been drafted. Unlike past plans, the stakeholders participated in the preparation of the Master Plan. This time the implementors know specifically what is being done, why, how and for whom.

Modernization

Modernization is needed to improve efficiency and effectiveness of the educational delivery system. Other means of addressing these issues and concerns are discussed in the succeeding sections.

Linkages between educational research, reform and development

The critical significance of educational research cannot be denied. Research is a cornerstone of educational planning, reform, development and evaluation—particularly where curriculum relevance, quality and effectiveness are basic concerns of educational planners and practitioners.

The Philippine government has undertaken several nation-wide educational research projects to provide targets against which the government could evaluate the reform efforts and thereby nationalize its educational investment priorities. The most significant research project was undertaken by the Education Commission (EDCOM). This project utilized research previously undertaken and where information was lacking, additional research was conducted.

One of EDCOM's recommendations to improve the efficiency of the delivery system of education was the restructuring of the DECS. The Bureau of Higher Education became a Commission on Higher Education and the Bureau of Technical and Vocational Education merged with the Manpower and Youth Council to become the Technician and Skills Development Authority. The DECS will become the Department of Basic Education (DBE).

The New Elementary School Curriculum (NESC) which began in 1983 was a curricular reform brought about by the results of the Survey on the Outcomes of Elementary Education. One of the significant findings of this survey was that there was no significant differences in the performances of pupils from Grades V and VI. Instead of removing Grade VI, the curriculum was revised and the NESC was brought to the fore. Among the salient features of the NESC are fewer learning areas, emphasis on mastery learning and more time allotted to reading, mathematics and writing.

The National College Entrance Examination (NCEE) is one programme which is used as a means of gathering data to update educational and curriculum plans and to strengthen guidance and counselling for high school students. In addition, it motivates colleges/universities to offer two-year post secondary/vocational-technical courses for NCEE non-qualifiers or those who failed the test. The NCEE also serves as an indicator of the quality of schools. When *barangay* high schools proved to perform the poorest, the NCEE prompted policy-makers to nationalize all *barangay* high schools.

One perennial problem that besets the education sector is the continued high drop-out rate in public schools. In order to provide an opportunity for these learners, the Accreditation and Equivalency Programme (AEP) was conceived. It was a painstaking effort to determine the learning competencies which pupils must acquire at different age levels. These competencies were translated into a test, the Philippine Educational Placement Test.

A joint study of the National Educational Testing and Research Centre (NETRC) and EDPITAF relative to the implementation of the AEP empirical information lent tacit inference to policies. A significant highlight of the findings dealt with the literary threshold of out-of-school youths. One out of every five dropouts reverted to a literacy level below Grade I. Retrogression below Grade I level decreases as the grade level completed increases. The general probability for a dropout to retrogress is there no matter which grade level the individual drops out from and that retrogression happens quite soon after a person drops out from school. The above findings resulted in the intensification of teaching basic literacy skills at every grade level, and to the implementation of development projects which aim to keep every child in school until completion of elementary education.

The Philippine project 'Joint Innovative Project on Raising the Achievement Level of Primary Education in the Philippines' developed teaching-learning innovations (parent learning support systems, school clusters, peer tutoring, tri-level materials, etc.) in selected sites all over the country. Of these strategies, the parent learning support system proved to be the most effective in its ability to raise the achievement level of even the poorest performing child. This innovative scheme places particular emphasis on the active participation of parents, guardians and/or community residents in the teaching-learning processes of schoolchildren.

To gauge the extent of educational improvement in public and private schools over time, Filipino fourth year high school students and Grade VI pupils are required to take a national examination. Replacing the NCEE, the National Secondary Assessment Test (NSAT) covers English, science, mathematics, social studies and Filipino. A counterpart testing programme for the elementary level, the National Elementary Assessment Test (NEAT), is likewise being implemented nation-wide by the NETRC. Both tests are intended to assess the performance of schools, to establish trends on their performance based on identified variables (by subject areas, division, region, etc.) and to monitor the performance of individual institutions over a period of time for future action. The 1994 NEAT results showed an improvement over the 1993 results in overall performance.

Although the NSAT is only in its first year, it indicates the dominance of private schools over public schools for reasons that are clearly gleaned from the following statements.

- Private schools charge high tuition fees to attain and maintain quality of instruction.
- Public schools are mandated to increase access to all students while the majority of private schools have tough screening mechanisms that only admit the best students.
- Increased access results in large classes that hardly provided for individual differences.
- Instructional facilities and materials are easily subsidized by private schools because of the high tuition fees they charge, while provisions for facilities and materials in public schools are left to the creativity and innovation of public school teachers.
- Public schools face many other constraints due to the limited government funds for education.

Complementing the DECS's policy of improving quality education and training, the NETRC has supported the implementation of the New Secondary Education Curriculum under the 1989 Secondary Education Development Programme. As the lead agency of the DECS in terms of measurement and evaluation, the NETRC was commissioned to undertake the evaluation aspect of the programme which is geared toward the improvement of quality of education and instruction at the secondary level. The evaluation aspect of the programme undertaken by the NETRC is a formative and summative evaluation on students' and teachers' performance in five of the secondary education subject areas: mathematics, science and technology, English, Filipino and Araling Panlipunan. The testing and research programmes undertaken by NETRC serve its legislative and policy directed goals and missions.

Major educational information sources

The Office of Planning Service of the DECS is a rich source of information on education. This office takes charge of the Management Information System of the DECS. All bureaux and offices of the DEO have information related to their field of work. Graduate schools have voluminous data relative to the different aspects of education as the by-product of theses and dissertations conducted as a requirement of the graduate course. Graduate journals, a requirement for accreditation of graduate education, also provide a wealth of information on education.

The Philippine Association of Graduate Education compiled and analyzed the different studies conducted by graduate students. Based on this analysis, guidelines for preparing research abstracts and research proposals were formulated. INNOTECH of the Southeast Asia Ministry of Education (based in the Philippines) provides information materials based on their training programmes. The Fund for Assistance to Private Education is a storehouse of information on private education. The Philippine Society for Educational Research has started the professionalization of research and the accumulation of information.

Problems in utilizing research findings

Foremost among the problems are a lack of funds which results in the delayed publication of the research, and the failure to explain to the stakeholders the research findings. If research findings are to be maximally utilized, the findings must be disseminated. To enhance further the utilization of research findings, they should be published in abstract form and sent to the users. A network system on the national or regional level is necessary to facilitate utilization of research findings.

Another problem is that the users can not decipher research results. There is a need for researchers to come up with both a technical report for practitioners and one for the use of general readers. There are not many researchers who possess skills in translating their findings to recommendations for policy discussions, curriculum writers, planners and various stakeholders. Research findings are not meaningful to readers unless they are translated to implementable activities. To help bridge the gap between researchers and users, training in research writing is in order.

Co-operation among research agencies is needed. A national and regional research agenda is needed to provide direction to the researchers and to avoid the duplication of conducting the same or related studies. Furthermore, an agenda will enhance the utilization of the results since these topics are specifically what they need.

There is a need to have access to modern information technology. Much data/information has been gathered but is not readily available when or where it is needed. Personnel must be trained to store and access information systematically.

The need to conduct research reviews and follow-ups must be addressed. These reviews should cover topics such as what research areas have large amounts of information but are not used, what areas have been neglected and where information is lacking.

For educational research to contribute profitably to decision-making and reform programmes, educators should dialogue with researchers and inter-agency co-operation has to be forged. Findings should be disseminated, information technology should be modernized including the training of personnel, research findings should be reviewed, and trends (whenever possible) have to be established. Research findings should be translated into implementable recommendations, and regular meetings among researchers, practitioners and decision-makers should be convened to take stock of progress and strengthen the weak communication link.

REPUBLIC OF KOREA

The education system in the Republic of Korea

The current education system in the Republic of Korea had its beginning in the late 1940s. The 'Education Law' enacted in 1949, based on the constitution, introduced the educational structure of six years of elementary school, three years of middle school, three years of high school and four years of college.

Elementary education intended for children 6 to 11 years of age is compulsory and free of charge. Its goal is to provide the basic skills necessary for everyday life and to cultivate citizenship. Virtually all of the eligible age group attends elementary school.

Education at the middle school level is compulsory and three years in length. Presently it is free of charge only for children in rural areas, but free education will be extended to all of the eligible children in the near future. As of 1994, 99.9% of elementary school graduates moved on to middle school.

High school education is divided into two major types—academic and vocational. Both divisions build upon middle school education but they lead to different goals. While general high schools (academic) mainly prepare students for college education, vocational high schools prepare students for employment. Of the total number of high school students, about 58.7% enrol in general high schools and 41.4% in vocational schools. Around 98.7% of middle school graduates go on to high school.

Higher education in the Republic of Korea falls into five categories: colleges and universities; teacher's colleges and colleges of education; correspondence and open universities; junior vocational colleges; and miscellaneous schools. As of 1994, approximately 45.3% of high school graduates advance to the institutes of higher education.

Major educational issues and reforms

ISSUES

Exam-bound schooling

One of the most prominent educational issues in the Republic of Korea is 'exam-bound teaching and learning'. The competition for college entrance is very stiff and as a result, schools are forced to utilize all their means to prepare children for the entrance examination. Schools and parents are solely concerned about students' exam scores. Other educational goals such as moral development and character building are ignored. Even intellectual growth is hampered and distorted because exam preparation places importance on rote learning and indoctrination rather than on developing critical thinking skills.

Education for life-long learning

The twenty-first century calls for the shift from a traditional formal schooling system to a life-long education system. In the future, society will be heavily dependent on information and knowledge. Intellectual and cultural resources will emerge as essential capital and countries will compete to obtain or produce information and knowledge. In the information age, it is virtually impossible to live with only the knowledge obtained during the childhood school years. Continuous renewal of information is necessary to make informed decisions in every stage of life. It is for this reason that life-long education should replace the present limited period of schooling. Ways to establish a life-long education system are sought in the Republic of Korea. The system will put educational programmes within the reach of every potential learner in the country.

College and university admissions

According to a recent survey, 88.2% of the students at the secondary level wish to pursue post-secondary education. In the case of parents, over 95% want to have their children obtain a college education. Naturally, the competition for admission is very intense and makes the procedures of admission the concern of the whole nation. One of the most pressing tasks for educational policy-makers is to solve the problems caused by the admission system. For the last fifty years, admission procedures have changed virtually every year, but the problems still remain.

Quality of higher education

The development of higher education is regarded as essential to national development, thus the government must intensify its support for the improvement of higher education. Recognizing the importance of higher education to individual socio-economic improvement, Korean citizens demand a radical improvement of higher education. Colleges and universities in the Republic of Korea have been criticized for producing incapable workers and being far behind in research activities. The Republic of Korea's limited research capacity and the non-academic climate of campuses are credited as the major factors that depress the quality of higher education.

Financing education

The continuous expansion of Korean education and the effort to improve educational conditions have required an enormous financial input. Educational expenditure has been on an increasing trend. The budget of the Ministry of Education has increased to over 20% of the total government budget, second only to that of national defence. Even with this enormous financial support, the Republic of Korea has yet to meet the needs of various educational sectors.

Autonomy of educational administration

Centralized administration demands that local administration and school operations be standardized and this results in the stifling of creativity at the local and school levels. The unique needs of schools and communities are usually not taken into account in the process of policy-making. With centralized administration, the Korean education system has shown rapid and standardized change in the scale and structure of schooling, but at the expense of commitment on the part of teachers and parents as it has constrained local administrations not to be responsive to societal and environmental changes.

As the decentralization of governance proceeds and local autonomy increases in the political milieu, there has been a call for the autonomy of the education system. The discussion is now on how to devise the system so that local administrations and schools may fully realize their educational potentials.

Reforms

The government of the Republic of Korea places a prime priority on education. Education is seen as the most fundamental and effective means to meet the challenges of the twenty-first century. The Presidential Commission on Education Reform, established in August 1993, has prepared several proposals and has urged the government to implement them. The major reform proposals are described below.

Reform in the school system

Rigid adherence to the existing school ladder system will be shifted in favour of a flexible application of the system. At the age of 5, children will be selectively admitted to elementary schools and bright children may be considered for acceleration. Efforts to extend free and compulsory education will continue to be made. Kindergarten will become part of the formal mainstream school system in near future.

The institutions of higher education will be diversified and functional realignment will be made to encourage colleges and universities to specialize in research and educational programmes in accordance with their unique strengths.

Establishment of a life-long education system

The Republic of Korea envisions an 'open education society' where appropriate programmes are always available to every person who wants to get an education. Along with this vision, the National Centre for Multi-media Education is planned and the credit bank system is going to be introduced. The Centre will produce, collect and disseminate educational programmes and materials. The whole nation will be within the reach of the Centre. The credit bank system

is to certify individual progress in education. Under this system, one can take courses from various educational institutions (whether they are formal or informal) and, if the courses are accredited by the authorities, one can accumulate credits to be applied toward the degree pursued.

The formal restrictions for enrolment in colleges and universities are also to be relaxed. Part-time enrolment will be allowed and higher education opportunities for workers will be expanded.

Increase of public educational expenditure

The campaign pledge of the president to raise the public educational expenditure up to 5% of the GNP is to be fulfilled. By 1998, educational expenditure will be significantly increased. The improvement of school facilities and equipment are major priorities for the use of the increased budget.

Reforms in school curriculum

The school curriculum is being restructured. The portion of required subjects will be reduced while electives will be increased. This policy is to make curricula more responsive to the individual needs of students. Allowing increased choice in course selection is intended to loosen the rigidity of the standardized school curriculum.

In the Republic of Korea, the school curriculum has been out of touch with local schools and teachers. The role of individual schools and teachers in constructing curriculum is also expanded. Under the general curriculum guidelines, teachers and schools are allowed to organize their own school curriculum in certain areas.

Increasing local autonomy

The major thrust of reforms in educational administration will be directed toward decentralizing the central functions and allowing local administrations to be self-reliant and flexible about issues which affect local education. The board of education will change its role from an executive body to a decision-making body.

The governance of individual schools will be largely entrusted to the 'School Steering Committee', which consists of the school principal, teachers, parents, community members, alumni and educational specialists. The Committee deals with such matters as the budget, extra-curricular activities and determination of electives for the school. It can also recruit principals and teachers (after consultation with the local administration).

Improvement of higher education

The qualitative improvement of higher education is a primary concern in the Republic of Korea. Colleges and universities will be pushed to meet the minimum requirement for facilities and equipment. Programme evaluation and support on the basis of the evaluation results will function as incentives for improvement. Competition between institutes of higher education is also encouraged through the measure of discriminative support.

In order to facilitate research activities, the Centre for Research Information will be established. Linked to information networks both within and outside of the Republic of Korea, the Centre will help researchers to locate information and materials. With regard to the curriculum, diversification and specialization are the major directions of the reforms. Colleges

and universities are encouraged to develop programmes tailored to students with special needs or goals. The credit requirements for a major will become flexible so that students may explore various areas of majors or pursue multiple majors.

Educational research and its role in reform

PROVISION FOR AND ORGANIZATION OF EDUCATIONAL RESEARCH

The university-based research institutes and the provincial/municipal centres for educational research have been the major cradles of educational reform. Additionally, elementary and secondary school teachers have conducted research relating to teaching practices and content of teaching in classrooms.

The government funds the university-based research institutes for carrying out such research, while local administrative authorities are responsible for funding research by the provincial or municipal centres. There also are private research institutes carrying out educational research with funding from sponsors or the agency which commissioned the research project.

Test-sites are selected to evaluate the feasibility and effects of a proposed reform. Research by these schools is funded either by the government or local authorities.

The Korean Educational Development Institute is the only government-funded research institute chartered to carry out research related to educational matters. It was established in 1972 as an independent, autonomous and government-funded juridical foundation.

Provincial or municipal centres for educational research are attached to the local educational authorities. Their activities concern schooling practices in a real setting. Effective curriculum management and teaching are their top priority tasks. The development and dissemination of instructional materials is another important function.

Research support for university-based institutes and individual scholars is managed by the Republic of Korea Research Foundation. The foundation provides grants for research projects on a competitive basis. It also collects, classifies and computerizes research information for researchers' use.

THE ROLE OF EDUCATIONAL RESEARCH IN REFORMS

Evaluation of the current status of educational policies and practices

When an issue is raised with regard to certain educational practices or policies, policy-makers and educational authorities usually respond by commissioning a research project to review the empirical evidence related to the issue. Collecting and analyzing empirical data, researchers assess the current status of the educational problem and recommend a solution. It cannot be guaranteed that the solution will be adopted by the decision-makers. As in the other social sciences, educational research findings always leave room for further studies. The private opinions of decision-makers may also affect the destiny of the proposed solution.

Information sources for the exploration of policy alternatives

When a reform initiative is not oriented toward a specific issue, efforts to devise reform proposals begin with reviewing the existing literature. Issues involved and possible solutions are mapped out on the basis of the review. From the review, policy-makers attempt to come

up with a reform idea suitable to the situation under consideration. Comparative studies examining the cases of foreign countries are especially popular in this step. In this case, the role of educational research is to be a frame of reference for a policy decision.

Development of the specifics of a reform

Reforms are sometimes proposed in the form of a general statement of intent or direction. Details of the proposal remain to be specified. This situation occurs when a political leader makes a public pledge regarding a reform. Researchers are requested to formulate details of the reform in accordance with the direction given. The current reforms in the Republic of Korea proceed largely in this manner. Based on discussions among commission members and extensive opinion surveys, the Presidential Commission on Education Reform announced the general directions for educational reform in May 1995. The specification and implementation of the proposals are left to the Ministry of Education. The Ministry has commissioned approximately fifty research projects to detail the reform proposals.

Future research needs

Educational research in the Republic of Korea tends to be speculative rather than empirical. Theoretical arguments have dominated empirical research. Even the empirical studies base their arguments on rather superficial data. Opinion surveys have been the most popular method in such studies. If educational research is to guide reform, it needs to examine schools and other educational settings as well as take into consideration the situations of teachers and students.

Time constraints have also hampered empirical research. Data collection for an empirical study is time-consuming and it often requires follow-up since educational phenomena are cumulative, have long-term effects and pertain to human development. To ensure a clear understanding of the state of education, the government and funding agencies should put a higher priority on longitudinal studies than on cross-sectional studies. Longitudinal studies are also necessary to evaluate the processes of reform implementation. Opportunities for long-term and longitudinal empirical research need to be expanded in the Republic of Korea.

Hurdles in linking research and reform

The fact that researchers and policy-makers have different interests, educational orientations and academic backgrounds jeopardizes the link between research and reforms. In this regard, two points can be made.

First, mainly because of their different work environments, researchers and policy-makers have different time-scales. Researchers desire sufficient time to produce high quality research, while policy-makers want to receive research findings as quickly as possible. Time constraints placed on researchers severely limit the data and methodology utilized. Consequently, the findings are presented with many limitations and are not a solid basis for reforms.

Second, researchers and policy-makers often differ in their educational priorities. Researchers put priority on intrinsic aspects of education, while policy-makers place priority on extrinsic aspects. To policy-makers, solving societal and economic problems through reforms in education is much more important than solving educational problems by mobilizing social and economic means. To educational researchers, the major priority is on education

rather than on economics or social matters. With different priorities, researchers and policy-makers often develop conflicting reform measures from identical research findings.

Another hurdle lies in the lack of empirical data. Educational research in the Republic of Korea has largely depended on opinion surveys. Even the effects of educational programmes have been assessed on the basis of the surveyed opinion of experts. Often data indicating the changes caused by the programme has not been collected. Time and budget constraints, as well as oversights by researchers, are liable for this situation. Research findings can only be helpful when accompanied by the necessary data.

Educational information resources

RESEARCH REPORTS

The Library of Congress has the largest collection of published and unpublished research reports. The library of the Korean Educational Development Institute retains all the reports by the Institute. Other private and university-based institutes have their own collections. Academic journals (especially the *Journal of Educational Research* published by the Korean Society for the Study of Education) contain research reports by individuals.

EDUCATIONAL STATISTICS

The National Board of Educational Evaluation collects a variety of Korean educational statistics and publishes the *Statistical Yearbook of Education*. More succinct statistics are available in *Educational Indicators in Korea*, which is published annually by the Korean Educational Development Institute.

DATABASES

The National Board of Educational Evaluation and the Korean Educational Development Institute have databases of educational statistics. The statistics cover virtually all aspects of Korean education. The Republic of Korea Research Foundation has developed the largest database of research information.

COMPUTER NETWORKS

One can find a variety of information on education on computer networks in the Republic of Korea. Anyone who has access to the networks can obtain information. 'HITEL' and 'CHOLLIAN' are the most popular networks. Using the networks, one can also be connected to the Library of Congress and other repositories of educational research.

ROMANIA

For many decades the population of Central and Eastern Europe waited for communism to fall. They hoped that the suppression of the three strands of totalitarianism (ideology of the unique party, political police and State dictatorship) would automatically lead to another social order similar to that of Western Europe.

Unfortunately, the experience of the five years of transition shows that communism will not disappear as quickly as it was established. Although constitutional, political and economic reforms have been accomplished, what may be called residual communism still persists. It is particularly prominent in the field of social behaviours, mentalities and attitudes.

As a paradox, democracy proves to be a favourable framework where all options are possible, including residual communism. Taking advantage of the discontentment created by the transition difficulties, the lack of political culture of the population and the permissive mechanisms of democracy, the crypto-communist parties (under the masks of socialist or social-democratic titles or coalitions) can have access again to power through democratic elections.

The effects of the struggle for power that characterize the post-communist transition are also felt in education. In this sense, starting from the case of Romania, our study revealed three specific problems:

- the dilemmas of stability/breaking off and continuity/change;
- the role of ideology in changing the current educational policies; and
- the relationship between experts and the decision-making process (especially the relationship between educational research and educational reform).

These three aspects seem to characterize the present evolution of Central and Eastern European countries. Our analysis refers mainly to the case of Romania, especially viewed in terms of three issues: breaking-off/continuity, ideological opportunism, and the dramatic need for investment in human resources. Considering some of the links we have tried to emphasize, the conclusions of this analysis may also be valid for other countries in transition.

Transition dilemmas

One of the errors of external analysts has been to consider 'the Eastern block' as a compact, homogeneous entity. In reality, this term covered a large variety of peoples, cultures, languages, religions, traditions and historic experiences. This variety explains the great diversity of models and problems to be addressed following the changes of 1989. Some countries had tried economic reforms within the communist regime while others passed directly from classic Stalinism to political democracy.

For this reason, the problems of continuity and stability, on the one hand, and breaking-off and change on the other, have different significance from one country to another. The countries that tried limited liberalization inside the communist system had to face the problem of continuity and finalization of the 'semi-reforms' of the 1970s. The elimination of ideological control over curricula was most marked in Hungary after 1978 and again when educational administration was decentralized in 1985. In this country they talk of change, transformation or modernization but not reform. For example, in Poland the reforms proposed in the 1980s by 'Solidarnosc' are only just becoming practice under favourable political conditions. In other countries, such as Romania, where paroxistic and ultranationalist totalitarianism was a feature of the 1980s, the year 1989 imposed the first stage in a spectacular breaking with the old regime, followed by a slowing down of educational reform and even the development of a counter-reform movement on the part of the neo-communist, populist and nationalist parties.

Finally, during the five years of post-communist transition there have been moments of denouncing the reforms already started. This is the case of ex-Czechoslovakia and the Russian Federation where they speak about a 'a reform of reforms' or reforms to correct the initial reforms.

The role of ideology

After the fall of communism, the official prohibition of Marxism-Leninism left an ideological void which has been filled by a multitude of political movements and groups (for example, in Bulgaria there are over 100 political parties). In the new countries created after breaking up with communist federations, nationalism has become a State ideology. In others, anti-war traditions and doctrines were reactivated, explained through the nostalgic feeling of 'lost paradise' (neo-traditionalism, orthodoxism, Magyarism, pan-Slavism, etc.). In other countries, the negation of Marxism determined a sudden switch to the opposite pole of the political spectrum and adoption of neo-liberalism as the official doctrine. For instance, although the 1988 Thatcherist reforms began to be contested in the United Kingdom after some years, they have been taken as an inspiration in some countries of Central Europe. At least, especially in the countries of Eastern Europe where the role of the State and social protection prevail, they speak mainly of social-democracy. Even though the word 'socialism' is avoided, the references to the 'Swedish model', 'Spanish model' or 'the social market economy' are not convincing. They are only verbal labels that cover a confused and contradictory situation where many of the old regime practices still persist (for example, State propriety over big bankrupt enterprises).

The case of Romania offers us a good opportunity to draw interesting conclusions regarding the role of ideology in new educational policies. On the one hand, the governing ideology is social-democracy, at least as this word is understood and applied in Central and Eastern Europe. On the other hand, under pressure from the International Monetary Fund and the World Bank, new innovations have been adopted starting from a neo-liberal ideology and market economy principle. Finally, regardless of the ideological correctness of these measures, the educational reform in Romania will be imposed from top to bottom, with the essential contribution of the State and centralized structures.

The contribution of experts

Acknowledging the need for expertise and the indispensable role of the 'intelligentsia' are the most important achievements of the post-communist transition. Before 1989, intellectuals were regarded with suspicion and even hostility. Their ability for autonomous thinking and their possible influence over workers made the intellectual an uncertain partner who had to be permanently supervised, manipulated and intimidated.

A victim of the witch hunts that justified the 'cultural revolution' of the 1980s, educational research in Ceausescu's Romania was subjected to unprecedented repression: experts were sentenced to forced labour and employed as unskilled workers, educational papers were destroyed, experts' access to schools was forbidden (so as to prevent the ideological contamination of the teaching staff), trials for the public conviction of heretics were framed, and even the words 'psychology' and 'education' were forbidden in the official language. Obviously, it was an extreme case. But it shows us how vulnerable is the experts' status in a totalitarian regime and how selfish power can be in relation to intellectuals.

The case of Romania in 1980s shows that, especially in countries where the law is deficient, educational research needs protection and guarantees of autonomy.

Perhaps if international organizations had been more efficient and better disposed to protect intellectual work, the 'cultural revolutions' would not have taken place. Unfortunately, international and professional associations did not react against the barbaric treatment which the dictatorship applied to its own educational researchers.

In the absence of efficient mechanisms and indulging in sterile approaches, the international community tolerated such situations. Under such conditions, even if the situation is radically changed in the Central and Eastern European countries, the persecution of researchers may reoccur anytime in any of the numerous dictatorships that still are in power in other regions of the world.

THAILAND

Education is the foundation of progress in the modern world. Critical thinking, problem-solving skills and the ability to work collaboratively represent qualities that education systems must promote if countries are to meet the economic, social and political challenges of the next century.

Such qualities are not easily developed. Educational research can identify critical barriers that make it difficult for teachers and schools to develop these qualities. But educational research must be linked with a process that can develop and implement policies to reduce such barriers. This paper describes how this process works in Thailand. Its focus is at the national level and the key role of the National Education Commission (NEC), but it also describes how the process works at other levels. It argues that only through an interlocking network of research activities, joining basic and applied research, can obstacles be addressed effectively. It concludes with a series of recommendations to strengthen these interlocking networks.

Background

Economic, social, political, environmental and population developments in Thailand have created a series of problems that must be addressed by the education system.

During the last decade, *economic change* in Thailand has occurred at a rapid rate, spurred by industrial development. Economic expansion has been much faster in urban areas, averaging nearly 8% in contrast to 4.6% in the agricultural sector. Income distribution has changed significantly as a result, with the top 20% of households increasing their share of income from 49.3% in 1976 to 54.6% in 1988. During this same period, the share of the bottom 20% of households declined from 6.1% to 4.5%. Regional imbalances have also occurred, with the share of gross domestic product in Bangkok and vicinity increasing from 42% in 1981 to 48% in 1989, while other regions declined.

A shift in the labour force has also taken place, with agricultural workers declining from 79% of the workforce in 1971 to 67% by 1986. Meanwhile employment in the industrial sector rose from 6% to 11% during these same years and the service sector rose from 15% to 22%.

Social and cultural changes, such as the effects of modern technology on society, continue to replace indigenous knowledge in rural areas, often with debilitating effects. Rural people have become less self-reliant and have lost their sense of pride and much of their

identity as knowledge passed down from generations has become increasingly lost. The influx of Western culture, reflecting larger international forces, has impacted negatively on attitudes and values of the population. As people increasingly adopt an urban lifestyle, co-operation among members of a community has declined.

In terms of morals and ethics, aggressive and violent behaviour has increased as religious practice has declined. There is a real need to promote ethical development in children.

In spite of periodic setbacks, *political stability* in Thailand has increased. In response, foreign investment has grown steadily. But participation in politics, as measured by those who cast their votes in parliamentary elections has increased only modestly from 50.7% in 1983 to 63.6% in 1988. The behaviour of some politicians has contributed to growing cynicism about the ability of the party system to address serious national problems.

During the last decade, *environmental changes* such as industrial expansion, have contributed to the loss of arable land, which has in turn increased illegal intrusion into forest preserves. Forest areas continued to decline as a result. A survey by the Royal Forestry Department showed that such forests have decreased from 43% in 1973 to under 28% by 1988. Meanwhile, natural resource exploitation has led to increased pollution.

From an international perspective one of Thailand's major accomplishments over the past thirty years has been in the area of *population control*. During the 1950s and 1960s Thailand's rate of population increase was 3%. By 1976 it had declined to 2.5% and by 1990 had fallen to 1.5%. The unintended effect, however, has been a population shift to a higher proportion of the elderly. Not only will this strain resources as the population ages, but also the age group attending school will continue to decline—thus having implications for educational policy.

Educational reform

Past trends, current co-ordination and future prospects serve as a platform for future development of education. Thus, educational reforms should address problems of economic disparity, environmental degradation, slow progress of science and technology, morality and ethics. Within the educational sectors, educational reforms should address problems of quality, equity, efficiency and effectiveness. Taking into account the problems and opportunities caused by increasing globalization, the NEC is looking at the following five areas for future reforms:

- curriculum: teaching-learning process at all levels, particularly at the primary and secondary levels, with a view to increasing efficiency of learning, as well as laying an adequate foundation for scientific and technological education at the higher level;
- teacher service: including the teachers' pre-service training, in-service training, the systems of evaluation and promotion, and development of professional services;
- higher education system: to improve effective learning at the university and college levels, to generate financial resources from the community and private sectors for this level of education, to expand educational opportunities to the rural population as well as to increase autonomy of the university system;
- administration and management: increasing decentralization and community participation at the grass-roots levels; and
- restructuring of the education system: to bring about a life-long learning system, and increasing application of education technology in the schooling system.

These five areas of educational development and reform may form the cornerstones of an long-term education plan. In addition, educational policy needs to contribute to reducing economic disparities, helping conserve the environment and providing leadership in international co-operation.

Educational research

Educational reform to address these problems will require radical changes in management and pedagogical practices. However, reform should not be based only on ideology. Sound information is a prerequisite to reduce the risk of failure. The NEC is responsible for the preparation of the National Scheme of Education and drafting of the National Education Development Plan. Therefore, this office is in a position to initiate or catalyze the educational reform of the country. With this very important responsibility, the NEC has to depend on adequate and reliable information. The NEC has set high priority for research activities since its inception in 1959.

In educational planning, the NEC utilizes information from various sources. General information is retrieved from the Educational Information Centre. This covers a wide range of data which show trends in the supply and demand for education, as well as the efficiency of the education system. Another source of information comes from evaluation projects which measure the outcomes of the National Education Development Plan. In addition, the NEC utilizes research to tackle specific educational problems.

Educational research activities in Thailand can be classified into four levels: national, ministerial/departmental, institutional and individual. The objectives of research projects are based on the functions of each organization. At the national level, research is aimed at the improvement of the efficiency of the education system, while research at the ministerial, institutional and individual levels usually contains more specific objectives. At any rate, the NEC utilizes all types of educational research for planning and policy formulation. In order to gather research results, a symposium on educational research is organized every two years. It is a forum where researchers from every region of the country exchange views and experiences, and learn about future directions for educational research. Research products that have been collected are stored into the database and are available to the general public.

During the last symposium in 1993, 446 research works were collected. The highest number was in the area of curriculum and instruction, representing 38%; followed by educational administration and supervision, 29%. The area that lacked research work was educational philosophy, being less than 1%. When classifying research by educational level, primary education had the highest number of research projects (28%), followed by secondary education (27%), while pre-primary education had the least number of research works (2.5%).

Analysis of the accumulated research works showed that many studies related to policy areas in the National Scheme of Education. However, there was inadequate research exploring alternative models of delivering educational services for a variety of needy target groups. For example, particular attention needs be paid to socially and economically disadvantaged children as well as handicapped children. In addition, more effort should be made to develop the full capacity of gifted children. With regard to life-long education and learning-networks, there were no concrete suggestions from any research project about promoting the role of families, communities, local institutions and mass media in the process of education. Finally, other neglected areas included environmental and cultural preservation. The campaign for resource and cultural preservation can only be achieved through co-operation from all members of society.

In the area of educational management and administration, there was a lack of research on: teacher deployment and utilization at each level of education; the efficiency of resource allocation; independence of higher education institutions; and obstacles and inefficiencies caused by outdated rules and regulations. Moreover, there were no definite recommendations regarding the need to decentralize educational administration from the central to the local level. Such decentralization can increase the relevance of education and promote learning-networks which in turn can help expand basic education to the broader public, especially in rural areas. In the area of teaching and learning, there were no suggestions on how to develop scientific thinking while also instilling appropriate moral values among children and youth.

Educational reform and research

As mentioned earlier, educational reform has to be based on educational research. This is why the NEC has invested a great deal of time and effort in research. Each year there are an average of twenty on-going research projects. These projects cover all levels of education but the topics vary depending on the current issues pertaining to each level. For example, Thailand achieved universal primary education many years ago, therefore we are focusing on socially and economically disadvantaged children. At the level of secondary education, there is on-going research on social demand and efficiency of supply of secondary education. At the university level, NEC is studying the problem of 'graduate shortage' in certain areas—engineering, medicine and natural sciences. In the area of information, there is a research and development project on information networks for educational planning and administration.

In general, each research project provides policy recommendations. But for some important issues many sources of information have to be gathered. For example, in formulating a policy on nine year compulsory education, information from a number of research and evaluation projects was synthesized. Once policy options and recommendations are formulated, they are presented to the NEC for consideration. The final decision will be made by the Cabinet. Following Cabinet approval, the policy will be put into effect. This means concerned agencies have to implement the policy. There are three major ministries that are responsible for education: the Ministry of Education, the Ministry of University Affairs and the Ministry of Interior. These Ministries supervise educational institutions as they address national education policies. In practice there is a mechanism for co-operation, since the composition of the NEC includes high-ranking administrators from major ministries.

During meetings at the NEC, all important educational issues are discussed and decided. The result is that Commission members become well informed about relevant data and research findings during the course of such discussions.

Stepping into the future

As we advance towards the year 2000 and the reality of the global village, Thailand needs to improve the ability of its education system to prepare human resources to meet the requirements of the future. There are seven areas of needed research:

- re-engineering the education system: revising the current model of educational administration, by decentralizing educational administration; developing and implementing a curriculum at each level so it meets the needs of local areas and the goals of national development; and evaluating the quality and efficiency of the education system;

- learning access: studying the learning culture and learning access in Thai society; promoting analytical thinking among learners; and promoting the affective domain of learning, such as morals, ethics and culture;
- improving the quality of life: strengthening the roles of family and community in the educational process; and creating a process of learning for sustainable development and environmental protection;
- educational development in an ever-changing society: developing appropriate roles and an optimum balance between general education and vocational education;
- creating social expectations for graduates at each level of education: developing a delivery system for a changing student population and broad-based target groups;
- resource mobilization for education: expanding the participation of private organizations in education; and
- development of research methodology in education: promoting the development of research instruments relevant to the Thai cultural and societal context.

It should be noted that a balance needs to be created between basic and applied research, since basic research builds a foundation, while applied and policy research focuses on tackling current problems and implications for action.

In order to achieve the goals of these research topics, the NEC conducts research promotion activities to maximize the relevance of research and to enhance dissemination of research findings to all potential users. For example, the symposium on educational research described earlier brings the research community in Thailand together to learn from one another.

In conclusion, there are five recommendations to strengthen research networks. First, there should be symposia on educational research at the regional and national levels. The goal would be to collect educational research and research in related fields and to disseminate them as widely as possible. The NEC would serve as the co-ordinating agency in organizing the meeting at both levels.

Second, educational research networks should be developed by utilizing a higher education institute or another provincial education agency to serve as a node for a regional network. Such nodes would have linkages with the national centre at the NEC. Research networks would increase the efficiency of collecting research studies from all over the country and help to promote the quality of educational research in accordance with the country's needs.

Third, in order to improve the state-of-the-art in education, active promotion of synthesizing educational research at the regional and national levels is needed. The outcome from a regional level could serve as input for a national synthesis.

Fourth, the NEC should serve as a co-ordinating agency to promote educational research. Regarding actual implementation, the NEC should develop a national education research programme and mobilize sufficient budget to commission public and private organizations to implement the programme.

Fifth, more forums should be organized to let researchers, research consumers and sponsoring agencies interact and exchange views. This would publicize on-going developments and help researchers to become aware of financial sources as well as emerging issues requiring educational research.

UNITED KINGDOM (SCOTLAND)

The scale and structure of Scotland's education system

Whilst the United Kingdom parliament is the legislative body throughout the United Kingdom, the main executive body in Scotland is the Scottish Office. The legal framework for education in Scotland is a series of Education (Scotland) Acts which apply specifically and only to Scotland. Education Acts for England and Wales do not apply in Scotland. The Education (Scotland) Acts are supplemented by Regulations which have the force of law.

Scotland has a population of 5.1 million (about one tenth of the United Kingdom population) and an area of 7.9 million hectares (approximately one third of the total area of the United Kingdom). Local government is in transition from a system of nine regional and three island councils (some of which are divided into districts), to a system of thirty-two single-tier authorities which, beginning in 1996, will have responsibility for education provision. This paper deals only with the state system which means schools provided by the education authorities. In Scotland, about 4% of school age pupils are in private education, a somewhat smaller proportion than in the United Kingdom as a whole (7%). Education is compulsory from the age of 5 to 16. Scotland has 705 nursery schools (for pupils age 3 and 4); 2,347 primary schools (for pupils age 5–12 years); and 412 secondary schools. It has twelve universities, four colleges of education, seven specialist colleges (of art, agriculture, etc.) and fifty-six colleges of further education (providing vocational courses for 16 year-olds and above). Within the state system all pupils transfer from primary to non-selective comprehensive secondary schools after seven years of schooling. At the age of 16, pupils sit the 'standard grade' examination of the Scottish Certificate of Education set by the Scottish Examination Board (SEB). They may also take some National Certificate (NC) modules, which are short vocational courses administered by the Scottish Vocational Education Council (SCOTVEC).

Pupils who remain in school after the age of 16 can take the 'higher grade' examination of the Scottish Certificate, which is the entry requirement for universities and some professional courses. Some students, however, will be retaking or taking further standard grade examinations and perhaps some NC modules instead of, or in addition to, higher grade examinations.

Provision for and organization of educational research

Educational research in Scotland is funded through a number of different sources, the Scottish Office Education Department (SOED) being the largest single source of funds (supporting about 43% of all funded projects). Other sources include charitable trusts, the Research Councils, regional education authorities, professional organizations, business and industry, and the European Union. University departments of education carry out research as part of their own academic programmes as well as externally commissioned and sponsored research.

Within the SOED, the research programme is managed by the Research and Intelligence Unit (RIU). This unit was set up in 1973 with the initial goals of helping to identify research needs and assisting in the negotiation of a range of projects. It now occupies a central position in the management of resources for educational research and its functions include planning, managing, evaluating, applying, promoting and publicizing research.

The RIU funds educational research mainly in areas related to government policy with the aims of informing policy, improving the quality of education in areas of concern, facilitating the implementation of policy decisions and evaluating the effects of policy

decisions. Decisions as to the areas in which research is to be commissioned are taken within the SOED with some input into the pool of possible projects from institutions and bodies with interests in education who are annually invited to submit suggestions for priority areas for research. Most of the commissioned projects (costing about £1 million a year) are awarded to research teams on the basis of competitive tendering. There is also a small budget for sponsored research in areas proposed to the SOED by researchers. All phases of education—early and primary, secondary, further, higher, community education and teacher education—receive research attention through the RIU programme.

An on-going element of research in Scotland is the continued operation of national surveys carried out by the Assessment of Achievement Programme (AAP), funded by the SOED. Since 1984 the AAP has conducted annual surveys in English, mathematics and science and biennial surveys in technical education and home economics. After 1987, a three year cycle was adopted, in which one of the three subjects is tested each year. Mathematics and science tests include practical activities as well as purely written tasks. The results are used to report the level of performance in various skills and areas of knowledge. The inclusion of some common tasks from one survey to the next allows comments to be made about changes in performance over time.

The major educational research organization in Scotland is the Scottish Council for Research in Education (SCRE). This is an independent body, founded in 1928, which supports education through research. Three-quarters of the SCRE's funding is obtained from funded research, mostly won by open tender. The remaining income derives from a contractual arrangement with the SOED. In return for this funding, the SCRE undertakes to provide services and research, which are specified in a contract and evaluated each year. As a national body, it has a role in disseminating all educational research carried out in Scotland by the SCRE or by other agencies through conferences and publications. It also maintains the index of Scottish educational research and makes this and other databases of research (for example, the international ERIC) available to the research and educational community.

The role of research in educational reforms

It has been the tradition in Scottish education that, once reform in a particular area has been recognized as being necessary (often as a result of a policy change with indirect or direct effects in that area), a committee of experts is set up to make proposals for change. The proposals are published for consultation, meaning that while institutions, associations and bodies with interests or expertise in the area will be invited to comment, anyone wishing to comment is also able to do so. Concurrently, pilot studies (if feasible) of certain aspects of the proposed changes may be mounted. On the basis of information received in the consultation and from any pilot studies, proposals are published and plans for their implementation drawn up and put into action. If the proposed changes are in the curriculum, they are taken forward through the actions of the Scottish Consultative Council on the Curriculum. Where they affect assessment and examinations, they are implemented through the SEB or the SCOTVEC.

Future research needs

Compared with research in all other professions, research in education receives a derisory amount of funding. However, working within the present levels of funding, Scotland's future educational needs are identified as being of three types: needs for studies in substantive areas relating to different aspects of education; needs relating to methodology; and concerns relating to interpreting and applying research.

In terms of substantive areas, the research needs identified include: the study of causes of differences among individuals or groups; the relationship of theories of teaching and learning to practice; the study of how assessment can be effectively adopted into teaching; and the mechanisms, such as class size, which influence pupil achievement. Methodological needs include the balance between qualitative and quantitative methods so that quantitative findings at the macro-level can be understood in terms of what happens at the micro-level. Methods are needed which look inside the 'black box' of an educational institution so that policy-makers at the system level, and thus within the institution, are in a position to know what changes may be required and how to bring them about. In relation to the interpretation and application of research, there is a need for synthesis or meta-analysis of several studies on a particular topic. In this way it is possible to reach conclusions which may be only tentatively supported by any one study. There is a case for developing further the techniques for strengthening the findings of any one study by reference to others. Given the ease of communication among nations made possible by the Internet, the opportunities for collaborative projects are increased.

Information sources

The Government Statistical Service collects and analyses information on aspects of conditions and provision in educational institutions, on matters concerning pupils' entry to school and pupils' destination after leaving school. The information is published in a regular series of Statistical Bulletins which are publicly available. The SEB and SCOTVEC also publish full statistical reports on the results of the qualifications they award.

Information about educational research in Scotland is available in a computer database held at the Scottish Council for Research in Education and provided to other users on CD-ROM. The SCRE also has on-line access to the register of research in the United Kingdom held by the National Foundation for Educational Research (NFER) in England and Wales, and to the EUDISED database held by the NFER.

It has been noted above that publicizing research is part of the function of the RIU, as it is also of the SCRE. The RIU requires every project which it funds to produce full final reports (and sometimes interim reports) which are academic in style and content. Additionally, the RIU requires a short report of about 4,000 words written in a non-academic style suitable for readers likely to be interested in and able to use the research findings. These *Interchange* reports are provided free of charge and widely distributed. Similar short reports, *Spotlights*, are published by the SCRE on findings from research which has been funded from sources other than the SOED.

The SCRE provides news about educational research in progress and information about current projects in Scotland in its newsletter *Research in Education*. It also publishes articles and news specifically aimed at teachers who are interested in undertaking research in their own classrooms in the form of observations. In addition to publishing the full reports of its own research projects, the SCRE publishes short books arising from research carried out in the SCRE or elsewhere in a series which includes titles on research methodology.

Both the RIU and the SCRE are using the World Wide Web to provide information about educational research in Scotland, using the RIU server (http://www.ed.ac.uk/riu).

Research networks available to Scottish researchers include three professional associations: the British Educational Research Association, the Scottish Educational Association and the European Educational Research Association. Policy-makers also have access to EURYDICE, a network of information on education in Europe. The Scottish Consultative Council on the Curriculum and the SCRE are also members of the Consortium of

Institutes for Development and Research in Education in Europe, which exists to promote collaborative projects and exchange of information on research and development.

Hurdles to the use of research findings and information for reform and decision-making

The word 'hurdles' is used rather than 'obstacles' since these matters are seen as gradually being overcome and not ones which will necessarily persist in preventing desired action.

The first of these is effective communication to decision-makers. The research community in Scotland is making efforts to provide information to potential users through seminars, conferences and targeted publications on research. It is also supported by the SOED policy on publication of its commissioned research. Seminars are provided by the SCRE for senior members of the SOED (and other government departments where relevant) to discuss findings from research as soon as projects are completed and often before findings are published. Other avenues for communication are the paper-based and electronic publications indicated above.

A second hurdle concerns the conflict between the time-scales of research and of policy-making. Inevitably, policy-makers need information to be supplied quickly, often more quickly than researchers feel is compatible with high quality work. In many cases, short-term projects will mean that some methods which would be appropriate to an in-depth study or to producing widely applicable results cannot be used. There is also a tension between the need of the policy-makers to have results of immediate application and for researchers to fulfil their role in adding to understanding of issues in education in a creative and imaginative way. This may not appear to be a hurdle in the short-term but it could lead to a situation in which research is so constrained that, in the future, it is less helpful than it could be: in-depth knowledge will not be accumulated and the role of researchers will be reduced to information gatherers.

The difficulty of anticipating future needs for research is a third hurdle. An obvious way of preventing some of the problems of gathering dependable data within the time-scale of policy-makers would be to anticipate needs and build up a knowledge base for research which could be reviewed and perhaps reinterpreted as required. This can be done for some aspects, particularly in relation to the more enduring issues in education. Indeed the SCRE carries out regular reviews for the SOED of existing research in areas identified by the SOED as being of current priority. These reviews often serve the purpose of focusing further research more closely rather than informing policy directly, since past research foci rarely coincide exactly with current concerns. In the same vein, it is rarely possible to anticipate future concerns and to prepare for them by building up a bank of information ahead of time, however desirable this might be. It is possible to use existing research findings relating to the *generic* aspects of reform. For example, much is known about the management of the process of change, be it change in teaching methods, materials or content. Using past experience will not solve current problems, but it will help to focus attention to matters of central concern.

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ANNEX III:
LIST OF ACRONYMS AND ABBREVIATIONS

AAP	Assessment of Achievement Programme (Scotland)
ACEID	Asia-Pacific Centre of Educational Innovation for Development
ACER	Australian Council for Educational Research
ADION	Automated Documentation and Information System for Educational Literature in the Netherlands
AEI	Australian Education Index
AEP	Accreditation and Equivalency Programme (Philippines)
ALECSO	Arab League Educational, Cultural and Scientific Organization
APEC	Asia-Pacific Economic Co-operation Council
APEID	Asia-Pacific Programme of Educational Innovation for Development
BEI	British Education Index
BER	Bureau of Educational Research (Kenya)
BERA	Botswana Educational Research Association
BREDA	UNESCO's Regional Office for Education in Africa (Dakar)
CARNEID	Caribbean Network of Educational Innovation for Development
CBS	Central Bureau of Statistics (Kenya)
CCIMD	Centre for Curriculum and Instructional Materials Development (Egypt)
CEDEFOP	European Centre for the Development of Vocational Training (Berlin)
CEI	Canadian Education Index
CIDE	Centre for Investigation and Development of Education (Chile)
CNIER	China National Institute for Educational Research
CONICET	National Council for Scientific and Technological Research (Argentina)
CORDEE	UNESCO's Co-operation for Renewal and Development of Education in Europe
CPE	Certificate of Primary Education (Kenya)
DAAD	Deutscher Akademischer Austauschdienst
DBE	Department of Basic Education (Philippines)
DECS	Department of Education, Culture and Sport (Philippines)
DION	Documentation and Information System for Educational Literature in the Netherlands
DSE	Deutsche Stiftung für internationale Entwicklung
ECLA	Economic Commission for Latin America
EDCOM	Education Commission (Philippines)
EIPDAS	UNESCO's Educational Innovation Programme for Development in the Arab States
EPRD	Educational Planning and Research Division (Malaysia)
ER	Educational research
ERDC	Educational Research and Development Centre (Bahrain)
ERIC	Educational Resources Information Center (United States)
ERIP	Educational Research Information for Practitioners (ERNESA)
ERNESA	Educational Research Network for Eastern and Southern Africa
ERNIKE	Educational Research Network in Kenya
ERNWACA	Educational Research Network for West and Central Africa
EUDISED	European Documentation and Information System for Education

EURYDICE	Educational Information Network in the European Union
FLACSO	Facultad Latinoamericana de Ciencias Sociales (Argentina)
GDP	Gross domestic product
GNP	Gross national product
HRD	Human resource development
IBE	International Bureau of Education (Geneva)
IBEDOCS	Documentary database of the International Bureau of Education
IDRC	International Development Research Centre (Ottawa)
IEA	International Association for the Evaluation of Educational Achievement
IES	Institute of Educational Sciences (Romania)
IIEP	International Institute for Educational Planning (Paris)
ILO	International Labour Organisation (Geneva)
INED	International Network for Educational Information (IBE)
INNODATA	Databank on educational innovations of the International Bureau of Education
INNOTECH	Regional Centre for Educational Innovation and Technology (SEAMEO)
ISESCO	Islamic Educational, Scientific and Cultural Organization
KCS	Kenya Catholic Secretariat
KEDI	Korean Educational Development Institute
KESI	Kenya Educational Staff Institute
KIE	Kenya Institute of Education
KISE	Kenya Institute of Special Education
KLB	Kenya Literature Bureau
KNEC	Kenya National Examinations Council
JKF	Jomo Kenyatta Foundation (Kenya)
LARRAG	Latin American Research Review and Advisory Group
MEC	Ministry of Education and Sports (Brazil)
MECE	Programa de Mejoramiento de la Equidad y Calidad de la Educación (Chile)
MECS	Ministry of Education, Culture and Science (Netherlands)
MOE	Ministry of Education (Bahrain, Botswana)
MOEC	Ministry of Education and Culture (Indonesia)
NCCK	National Christian Council of Kenya
NCEE	National College Entrance Examination (Philippines)
NCEEE	National Centre of Examination and Educational Evaluation (Egypt)
NCERD	National Centre for Educational Research and Development (Egypt)
NCERT	National Council for Educational Research and Training (India)
NCST	National Council for Science and Technology (Kenya)
NEAT	National Elementary Assessment Test (Philippines)
NEC	National Education Commission (Thailand)
NEIDA	UNESCO's Network of Educational Innovation for Development in Africa
NESC	New Elementary School Curriculum (Philippines)
NETRC	National Educational Testing and Research Centre (Philippines)
NFER	National Foundation for Educational Research (United Kingdom)
NGOs	Non-governmental organizations
NIER	National Institute for Educational Research of Japan
NORRAG	Northern Research Review and Advisory Group
NSAT	National Secondary Assessment Test (Philippines)
NUPES	Centre for Higher Education Research (Brazil)
OECD	Organisation for Economic Co-operation and Development (Paris)

OEI	Oficina de Estados Iberoamericanos para la Educación, la Ciencia y la Cultura (Madrid)
OERI	Office of Educational Research and Improvement (United States)
OREALC	UNESCO's Regional Office for Education in Latin America and the Caribbean (Santiago)
PROAP	UNESCO's Principal Regional Office for Asia and the Pacific (Bangkok)
R&D	Research and development
REDUC	Latin American Information and Documentation Network for Education
REIN	Regional Educational Information Network
RIU	Research and Intelligence Unit (Scotland)
RRAG	Research Review and Advisory Group
SAFER	South Asian Federation of Educational Research
SCOTVEC	Scottish Vocational Education Council
SCRE	Scottish Council for Research in Education
SEAMEO	Southeast Asian Ministers of Education Organization
SEARRAG	South-East Asia Research Review and Advisory Group
SEB	Scottish Examination Board
SEDP	Secondary Education Development Programme (Philippines)
SERI	Southern Education Research Initiative
SOED	Scottish Office Education Department
SVO	National Institute for Educational Research (Netherlands)
TSC	Teachers Service Commission (Kenya)
UIE	UNESCO Institute of Education (Hamburg)
UNDP	United Nations Development Programme (New York)
UNEDBAS	UNESCO's Regional Office for Education in the Arab States (Beirut)
UNESCO	United Nations Educational, Scientific and Cultural Organization (Paris)
UNICEF	United Nations Children's Fund (New York)
USAID	United States Agency for International Development (Washington)
VEETAC	Vocational Education, Employment and Training Advisory Committee (Australia)

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Profiles of famous educators: *Malcolm Adiseshiah (1910–94).*

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